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# MINECRAFT IN THE VAN

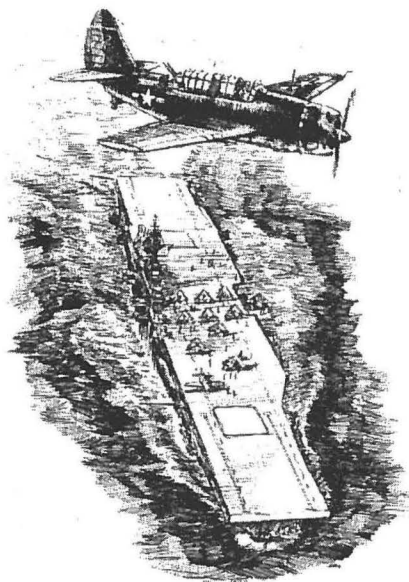


ELLSWORTH  
DUDLEY  
McEATHRON  
CAPTAIN - USN

A HISTORY OF UNITED STATES NAVAL MINE WARFARE IN  
WORLD WAR II - - - BOOKS 1 & 2 OF FOUR BOOKS



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OFFICE OF NAVAL HISTORY  
Room 2403  
Department of the Navy  
Washington 25, D. C.  
8 August 1946

Gentlemen:

Greetings.

The enclosure of 120 pages, including Appendix I, has taken over four months to prepare, not including time used in mimeographing and distribution. Yes, I agree that the produce is not what it should be considering such effort. It might have been different had some of you gentlemen sent in better records and, anyway, I am not a writer nor a historian and the job is open as far as I am concerned, if any of you can do better.

For better or for worse, if published, the product is tentatively planned as being one volume of four "books". Books I and II, being a convenient method of dividing the subject matter into more or less logical subdivisions, contain background material essential to the understanding of the mine warfare effort and which cannot be logically included under divisions dealing with individual operations. It is these two books which are liable to be lopsided because my experiences were lopsided, and records are hidden and not complete. I find that I have to know just about what I am looking for in order to dig it out. It is not enough that the facts be accurate, they must be presented in their true relation to other facts. A skillful but crooked lawyer can take most any set of facts and prove that black is white, by picking and choosing those things which serve his purpose. In case it is necessary, I might add that my objective is to present the maximum of pertinent facts and lessons without bias, but within reason as regards space limitations. I am not trying to prove anything.

Your additions for filling in any moth holes in the fabric are greatly desired. If you have a rebuttal to any facts claimed or conclusions drawn which does not entirely convince me, I will quote it provided it is pertinent, concise and has reader interest. Just to say that I am "all wet" on a certain subject may help a little, but not much. I have exhausted my memory and all source material that I know of in writing the enclosure, so I would need somewhat more to go on than that.

It is planned that Books III and IV will cover all operations individually and chronologically, with perhaps the latter modified to a degree by grouping in accordance with areas. Where the Task Groups were large, their organizations may be placed in appendices. Such writing will take much research and let us hope that all of the minesweeping and action reports are in. Just how big a volume the contemplated work might be is anybody's guess - perhaps 300 printed pages.

Where known, it has been attempted to give the name of the Commanding Officer of any mentioned vessel, at least at the time of first mention. That is difficult to obtain with certainty



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in all cases, as the way diary, if any, may be log size, micro-filmed and buried; or the signature may be an illegible scrawl, without the name typed below. Rank also presents some difficulty, as reports are signed without mention of rank. The policy has been to use the rank held at the time that mention was called for. Within reason, the liberal use of names is desired if they can gracefully be dragged in by the heels, but initials at least are necessary.

English and French were my two "wooden subjects" at the Naval Academy. I was pegged for a 2.4 in English, and it was only when a new professor arrived on the scene that I was able to climb off the "tree". One of the minor reasons for wishing to have the prospective book published is so that I can throw a copy through the window of the English Department. Where there was so much smoke, I am forced to admit that there was a wee bit of a flame. For that reason, I need your aid, in my conspiracy, in pointing out any errors, syntax or otherwise, no matter how small they may be. Particularly do I need to know of any sentences over which you stumble and have to read twice or more in order to obtain their meaning; I being a sucker for long and involved sentences. However, please do not return the enclosure marked up, as I could not handle any great number of those.

Whether this "history" will be published or not will depend a great deal on calculated reader interest; but if this is not published, then there will probably be no other. Possible, an authentic account with matter arranged in its proper slot so that one could obtain a somewhat more than blurred overall picture, as distinguished from a popular work somewhat along the lines of a novel where the hero always wins, might have only limited appeal to others than those that served in mine warfare organizations. Even so, that market would not be bad provided they knew that such a book were published. The Chaplain Corps contemplates publishing a book on which they would break even if only two thousand copies were sold. Our prospective market should be much wider than that. Royalties, if any, would go to the U. S. Treasury, I am told. If this be published, it would probably be necessary to boil Books I and II down somewhat. Therefore, your suggestions as to those parts that put you to sleep and should be trimmed, as well as contributions of humorous situations, anecdotes and episodes are essential to increased reader interest.

It is assumed that everyone connected with mine warfare organizations, including yourself, desires that such a book be published, even if they are not interested in buying a copy. Might I beg for a timely review from you? The answers will have to be sorted and portions of the text rewritten, but I refuse to rewrite more than once. Also, my time on this assignment is limited, I suppose, even if BuPers is not breathing down my neck - yet.



Not only do I have to be a detective to ferret out who was on what operation, but I have to be a detective in ferreting out present addresses. If I have not used the proper address please send me a correction and also any change that may occur prior to the buttoning up of this task.

Perhaps you can suggest a better title for this manuscript.

Sincerely yours,

/s/ E. D. McEathron  
Ellsworth Dudley McEathron  
Captain, U. S. Navy



MINECRAFT IN THE VAN  
A HISTORY OF  
UNITED STATES NAVAL MINE WARFARE IN WORLD WAR II  
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## 1. WHERE WE GO FROM HERE.

To the casual reader, the actual operations in the face of the enemy might be the only matter of interest, certainly the most readable. As such activities sometimes approach the spectacular, this is a readily understandable. A business man might spend an entire lifetime of hard work and honest endeavor, to be finally honored by being elected President of the Chamber of Commerce. It would be a mistake to write of that moment and label it a history of his life. That might be the peak, but it would tell nothing as to why the citizenry held him in such esteem. Nor would it tell why the Chamber of Commerce was necessary, nor what supported it.

To the Navy man, there may be long years of preparation, study, training. There may be years of war time cruising, through calm seas, rough seas, mountainous seas. Years of darkened ship; cramped quarters, with months during which he does not set foot on the beach; perhaps movies, perhaps no movies; sometimes with press news, more often with none; sometimes fair mail service, often none over long periods of time; sometimes with good and ample food; many times merely one jump from an empty bean locker; sometimes there is fresh water for bathing, but more often not. There may be days and weeks on end, from dawn to dark, of sweeping in a field for the trickiest of all weapons - the mine. Other operations may allow a breathing spell, but not minesweeping. Exact formation must be kept at all times, with injury, death and the loss of the vessel as the penalty for taking a blow. Occasionally, especially during the assault phase, the penalty falls in any case. The strain is great.

All this may or may not, according to pure chance, be climaxed by one or more supreme moments when he comes to grips with the enemy at first hand. That is his supreme adventure, as it no doubt is in other branches of the Service and in other Services, and all after that is anti-climax. Bear with us; we will attempt to set down some of those moments, though they may be pale in telling, but the story would not be a story were it not set down as to how he got there and why.

## 2. STATUS OF MINE WARFARE PRIOR TO WORLD WAR II HOSTILITIES.

Unsuccessful attempts with a crude forerunner of the Italian "limpet mine" were made by the Continentals during the War of the Revolution. During the war between the States, the Confederates used primitive moored mines, then called "torpedoes", with moderate success. The first use by Americans of an effective mine, on a large scale, was in laying the World War I North Sea Barrage, as a barrier to German submarines. This barrage, of which about 20% was laid by the British, was the largest single mining effort in history, up to that time. It is a national characteristic of the typical American, if such there



be, to dream of things on a large scale and then go out and accomplish that dream. The North Sea Barrage was such a dream, accomplished. After the cessation of World War I hostilities, it took many a long and arduous month to clean up this field with the sweep gear then current, crude and hazardous in use. One of the modern Task Groups of Fleet Minesweepers (AM's), such as swept the East China Sea fields, could probably have kicked out the North Sea Barrage in two weeks, and possibly without casualties.

During the Russo-Japanese War, considering the limited operations involved, the Russians used mines with marked success and continued, in World War I, to be relatively expert in developing new wrinkles in mining and in the use of defensive mine fields. It remained for the Germans, in World War II, to drive home the fact that mines could be profitably used for offensive mining, on a large scale. That is to say to lay mines in large numbers in the enemy's waters in order to hamper his movements with little restriction to one's own, as the layer has no intention of immediately using those waters himself. It remained for aircraft to make offensive mining and mine blockading, on a large scale, effective.

Prior to the above, a preponderant sea power looked upon mines more as a nuisance than anything else. Such a power desired to be able to send its forces anywhere. Due to the strategic position of the United States and the tradition of its Navy that, if war must be fought, it is better to fight in someone else's backyard, rather than in our own, we particularly did not like mines and still don't, for that matter. Also, practically all of the officers and men who laid or swept the North Sea Barrage were gone from the Navy by 1939. Further, relatively few senior officers were ever exposed to the mine virus until the North African Campaign and the push across the Central Pacific began, and even to this day the assignment of a senior regular officer, except for the Admiral, to mine warfare is considered the kiss of death to his naval career. True, we had several thousands of unfilled World War I type mines stored at Yorktown, Va., and mining was kept partially alive, although anemic, by the few old high speed minelayers of Minecraft, Battle Force, Pacific Fleet, and also by submarines laying occasional drill fields in the usually smooth waters off Lahaina, Maui, T. H. When war caught the world in its grip in 1939, modern minesweeping did not exist. Our only sweepers were the World War I Bird Class, with their obsolete catenary wire. These were doing yeoman service for the Fleet, as they had done during the entire period between wars, as the work horses; target and other towing, salvage, submarine rescue, seaplane tenders and anything else that came along, just so long as it wasn't minesweeping. Mine Warfare was at a low ebb, indeed.

### 3. DEVELOPMENT OF MINESWEEPING GEAR.

The drive behind the development of minesweeping gear

towed at low speeds, 10 knots or less, and for trained minesweeping personnel to man the ships came from the Naval Districts Division of the Office of the Chief of Naval Operations (CNO), rather than from the Fleet, although the latter capitalized on both developments. That Division was charged with placing the means for coast defense in the hands of the Commandants of the various Naval Districts. As the plans developed, each District was divided into defense sections and local bases in each section were established, in order to support the local defense small craft. Such a base thus obtained the name "Section Base", preceded by its geographical location; for example, "Pearl Harbor Section Base."

The following paper, showing how the minesweeping gear used in World War II was developed, was prepared by Cmdr. W. M. Southgate, USNR, of the Mine Warfare Section of CNO.

"Nowhere in the field of mine warfare was the European conflict more clearly reflected than in minesweeping, and activity began in September 1939. Its pace was measurably increased in May of 1940 and by the fall of 1940 development was in full swing. In September 1939 Captain Alexander Sharp, USN, was assigned to the planning desk in the Naval Districts Division. At about the same time a desk responsible specially for minesweeping was established in the Bureau of Construction and Repair (BuC&R), later a part of BuShips, and Lt. Cmdr. E. C. Craig, USN, was assigned to it.

"The Naval Districts Division faced a tremendous and apparently limitless task wherever it turned. Minesweeping was merely one of many aspects of the base defense activities of that Division, yet it alone presented manifold problems. The number of minesweepers in the Navy was wholly inadequate, their gear antiquated or even non-existent. Ships had to be built or converted and satisfactory sweeping gear developed for them. Adequate base facilities were needed, and personnel had to be procured and trained. The acquiring of local defense bases and suitable personnel to man them were general base defense problems, but we are concerned here primarily with the development of adequate sweeping gear.

"In 1939 the Naval Districts Division was occupied, in the main, with a survey of the situation. In regard to ships, this meant a canvassing of the commercial vessels available for conversion and a search for small yards which could be used in conversion. In view of the variety of activities which the Naval Districts Division was forced to undertake and the small number of officers in the Division, there being only six listed as of 15 January 1940, the responsibility of adequate sweeping gear fell largely to the material Bureau, the Bureau of Construction and Repair. Similarly, in the absence of a CNO directive for the development of Fleet minesweeping gear, that Bureau took action there also. Later, as the Naval Districts



Division took an increasingly active part with the Bureau in minesweeping development, the close relationship between District minesweeping and Fleet minesweeping was continued, with the Naval Districts Division taking the responsibility in CNO for the Fleet as well as for the District Craft. This was a natural solution, since minesweeping, in practice, is not an easily divisible subject. But it should be noted that here was another link in the chain which eventually bound the whole field of mine warfare to the Division of CNO whose concern was originally limited to District affairs and base defense.

"The year 1939 saw a very real beginning of the development of high speed moored minesweeping. Since this was a Fleet problem, development took place as a result of direct cooperation between BuC&R and the Fleet.

"The four destroyers of Mobile Target Division ONE were equipped with experimental high speed gear, two with 'American type' and two with gear which Lt. Cmdr. Craig had developed on the model of British high speed gear. These destroyers had been selected for this work because they were equipped with winches for handling target tows. As a result of experiments with the gear, Commander MTD ONE, Cmdr. R. S. Berkey, USN, unqualifiedly recommended that the British gear be adopted as standard, and BuC&R followed his recommendation. Destroyer Division 24, Cmdr. G. F. Hussey Jr., USN, later becoming part of Mine Squadron TWO, was equipped entirely with the British gear and the two units made exhaustive tests. In making an assessment of the situation on 17 January, 1940, Lt. Cmdr. Craig noted that the Navy could now count on four regular high speed minesweepers, the four of DesDiv 24. Since the ships of MTD ONE were used so extensively for target towing they 'cannot be considered...for general fleet use'. The experiments were successful enough to convince CNO, who ordered four additional destroyers equipped with the new gear. The only serious problem appeared to be the winches. Originally designed for target towing, they had proved unsatisfactory for sweeping.

"Despite the small number of ships converted to the new gear and the need for improvement in details, the ground work had been laid and the pattern of future development determined. If obstacles, such as the unsatisfactory target towing winches, remained, they were known and could be overcome. This early and signal achievement in the field of mine warfare was due to the joint efforts of the two fleet commanders and Lt. Cmdr. Craig. The extensive correspondence in the BuShips confidential files for the period 1939-40 testifies to the detailed interest of these officers and their painstaking experimentation during these months.

"In January 1940 the Bureau reported to CNO that the low speed gear in use by the Fleet was virtually worthless. It was of World War I vintage, heavy, cumbersome and clumsy.



The Bureau also stated that it was developing new gear, and one draftsman was working on the information on hand. Some days later Cmdr. E. H. Geiselman, USN, of BuC&R addressed a memo to Capt. Sharp stating that the Bureau's objective, with respect to minesweeping by Naval District forces, was to provide equipment to fit out commercial craft to be used for an emergency. He stated further that 'in view of the lack of development in minesweeping equipment and technique, the decision has been made to adopt the types of gear now successfully used abroad.' Plans were ready for gear for low speed commercial craft to be developed in Boston.

"The process of conversion was extended to the 13th and 12th Naval Districts shortly thereafter. The work was on a small scale, however, and uncertainty existed in the yards as to its importance. The Bureau therefore requested CNO to give the development of the new gear and the conversion of the ships a high priority. CNO pointed out, in reply, that the work was relatively so small as not to require priority, but ordered the yards to expedite it. Apparently, the work did proceed, for in early June 1940 the Boston Yard was directed to order ten sets of the type O gear (Oropesa gear) and some days later the Mare Island Yard was directed to test the gear as soon as possible and to order 24 sets.

"By the middle of August the Bureau of Ships, an amalgamation of BuC&R and BuEng, was able to issue a directive that all vessels converted for low speed sweeping should have type O gear and to issue tentative operating instructions. According to the Commandant of the First Naval District, on 16 August 1940, the development and standardization of type O gear similar and of equal or superior performance to foreign gear was an 'accomplished fact.'

"The development of moored minesweeping gear took place independently of the new development in weapons. Magnetic sweeping, like degaussing, followed the introduction of the magnetic mine and was therefore nearly a year later than the moored minesweeping gear in its development. Nor did the new sweeping gear develop as soon as degaussing, and this too was natural. Degaussing presented a more pressing problem to a neutral nation than did minesweeping. In the early months of the war our concern was to safeguard any of our ships that might have to navigate in waters possibly mined by one of the belligerents. As a neutral we could not sweep all of these waters, but we could degauss our ships. Secondly, while difficulty was experienced in getting official information on all magnetic mine countermeasures, unofficial information was available on degaussing, since degaussed ships were in our ports.

"The events of May 1940 changed all this. With the failure of the Allied forces in Norway and the invasion of the Low Countries there came a change in the approach to the

war by both Britain and the United States. Britain, increasingly aware of her need for American help, showed a new willingness to exchange information. At the same time, the success of the German armies brought the possibility of war closer to the United States. The directives to degauss all American Naval Vessels were issued in June 1940, but in May, work already had begun on magnetic sweeping gear development.

"The question of cognizance over magnetic sweeping had been raised during the controversy over degaussing. The SecNav letter, of 10 May 1940, which gave the cognizance of degaussing to BuOrd, could be taken either way in regard to magnetic sweeping. The example of BuOrd in going ahead with degaussing before the settlement of cognizance may have been in the minds of the joint Bureaus. In any case, several days after the SecNav letter, which was written the day Hitler's armies invaded the Low Countries, Admiral A. H. Van Keuren, USN, Chief of BuC&R, consulted Admiral H. R. Stark, USN, 'who stated that the cognizance of gear for sweeping or otherwise eliminating the magnetic type of mine was under the cognizance of the Bureau of C&R, along with the other minesweeping equipment.' The Chief of the Bureau of C&R therefore directed Lt. Cmdr. Craig to assemble information on the subject and be prepared to proceed with the development and manufacture of gear.

"During the early months of 1940 the scientists at the Naval Ordnance Laboratory (NOL) had begun an investigation of methods to detonate magnetic mines, paralleling their work on degaussing. Lacking detailed information on the magnetic mine, the investigations were of a fairly general nature. Their conclusions, however, embodied in Mine Unit Memo No. 535 signed by both Dr. R. C. Duncan and Cmdr. J. B. Glennon, USN, were quite sound and canvassed the entire field of possible magnetic minesweeping, including the measures eventually adopted and the methods used in testing the gear.

"On May 18, 1940, Lt. Cmdr. Craig sent specifications for a double loop sweep to the Electrical Section of BuShips, and requested the Section to furnish data on the power requirements needed. The Electrical Section outlined the requirements two weeks later. In the meantime, however, Craig had gone ahead with his plans, discussed the problems with representatives of BuOrd and asked that Bureau to furnish firing devices to be used in testing the magnetic sweeping gear.

"Early in June 1940, BuC&R and BuEng informed CNO that they had under development means of combatting magnetic mines and recommended the establishment of a testing station on the Chesapeake, which was finally established at Solomon's Island, Md. In this letter the joint Bureaus again raised the question of cognizance, possibly as a result of the conferences which had been going on between representatives of the joint Bureaus



and BuOrd. The Director of the Naval Districts Division recommended the assignment of the U. S. S. Hannibal as a test vessel, but did not at this time settle the question of cognizance.

"It had been increasingly apparent to those working on magnetic mine warfare that better liaison should be established with the British, in order to take advantage of the experience gained in the first part of the War. On 11 July 1940, Lt. Cmdr. Craig, together with Lt. Cmdr. R. E. Wilson, USN, of BuShips and Dr. Francis Bitter of BuOrd, left for England. During their absence experimental work on the development of magnetic minesweeping gear proceeded. A project order had been established at the Norfolk Navy Yard for experimental work, on June 29, 1940, and steps were taken to procure two subchasers for the work. Detailed instruction for the experimental gear were issued to the Navy Yard early in August, 1940. During the month several other ships of various types were added to the original three and the necessary material was accumulated.

"The return of Lt. Cmdr. Craig on 11 September, 1940, from England was followed by increased activity in both BuShips and CNO. Although Craig and Lt. Cmdr. Wilson failed to obtain approval for the unified mine warfare organization proposed in the letter of 28 August, by the U. S. Naval Attache at London, the question of cognizance was settled finally and CNO stated clearly its own responsibility for minesweeping and placed it in the Naval Districts Division.

"On the basis of British data, on 20 September, 1940, BuShips issued complete and detailed specifications for the work at Norfolk on magnetic sweeping gear and BuOrd was requested to furnish drill mines in expectancy of tests within eight weeks. BuShips also directed the Navy Yards to give the highest priority to the development and manufacture of minesweeping equipment and requested weekly reports of progress.

"The work proceeded so rapidly that CNO was able to inform CominBatFor, on 10 October 1940, that plans were being prepared by BuShips to install magnetic sweep gear on all bird class minesweepers and all minelayers and that full instructions were being drawn up. However, magnetic sweep gear was not installed in those types. BuShips issued the first of its Pilot Letters to the Fleet later in the month explaining in detail the principles of magnetic countermeasures.

"While the initial work on magnetic minesweeping was getting under way, moored minesweeping gear had reached the production stage in the Navy Yards under BuShips' guidance. In a memorandum of 15 November 1940, Lt. Cmdr. Craig was able to report that 33 ships had been equipped with the new low speed gear and seven with high speed gear. Magnetic sweeping

gear was still confined to experimental ships. By the middle of January, 1941, the total number of ships equipped with moored minesweeping gear had reached 64, and 17 were equipped with magnetic gear.

"As a final test of the efficacy of the new O type gear and to iron out any technical defects which might exist, CNO requested BuShips to arrange a full dress drill using live mines with reduced charges. Some measure of the state of cooperation reached by the Bureaus concerned is shown by the issuance of a joint letter from BuShips and BuOrd in which the Bureaus express complete agreement that the test, to be worthwhile, must be made with fully loaded mines. CNO in return agreed to the recommendation and established a test unit. The tests were performed late in March 1941 and the Commanding Officer of the Unit expressed great satisfaction with the gear, suggesting only minor improvements. It should be noted that this was the first actual operational experience of American Naval Officers with live mines since the first World War.

"On 25 February 1941, BuShips, in a report to CNO, reviewed the entire minesweeping program, listing types of ships, types of gear, and whether the ships were for District or Fleet use. A total of 270 were listed for District use, of which 66 were being converted, 64 constructed, and 140 authorized for construction. All but 17 of these would be equipped with both magnetic and moored sweeping gear. Of the 117 ships planned for Fleet use only 14 moored sweepers were in commission. The remainder, equipped for magnetic and moored sweeping, were under construction or authorized. Furthermore, the Bureau had ordered gear for 143 more sweepers in order to meet CNO specifications for war time needs.

"The authorization for a program of such magnitude was the result of the joint efforts of BuShips and the Naval Districts Division. In mid February, 1941, the War Plans Division had advised drastic cuts in the program on the grounds that it would adversely affect other construction projects. Admiral Sharp objected vigorously to the proposed cut and recommended that the program stand. Admiral R. E. Ingersoll, USN, for CNO, concurred in Admiral Sharp's opinion. The endorsements by the CNO Divisions on the BuShips schedule therefore followed as a matter of course. It is significant to note, however, that the endorsement of the Fleet Maintenance Division, which was the first, merely forwarded the letter for 'comment and recommendation' to the Naval Districts Division and to War Plans. On the basis of their concurrence, Fleet Maintenance then drew up the CNO letter to BuShips, declaring that the program was adequate and no further gear need be obtained."



Ambitious as the program appeared to be at that time, it will be noted that no provision was made for replacement gear with which to cover losses. Experience with high ratios of losses in active fields had not taught people to "think big enough" to quote Capt. Mentz. As a result, Oropesa gear had to be sent to Europe by air during the Mediterranean and European Campaigns and, in the Pacific, we were constantly in the throes of one crisis after another until as late as November, 1945. By the latter date, we had too much gear in most categories.

#### 4. EARLY DEVELOPMENT OF THE BUILDING PROGRAM.

All vessels acquired were steel hulls except for: YMS's; SC's; AMc's; three of the YDG's; and some of the AN's.

As we have seen, the fall of 1939 saw the installation of high speed gear installed in four World War I destroyers, with the preliminary tests completed by 17 January 1940. This type vessel was to become known as the Destroyer Minesweeper (DMS).

During the Winter of 1939-40, thirty-five wooden fishing boats were acquired from private owners, converted to Coastal Minesweepers and commissioned as AMc's 1-35. Plans for the building of additional Coastal Minesweepers were requested from private shipyards, and the first such plans were submitted to BuShips for checking during November, 1940. The first construction contract was awarded on 7 January 1941, and the first AMc completed was commissioned on 24 July, 1941, as the AMc 36.

On 6 June 1940, an order was placed with the Norfolk Navy Yard for two reduction geared diesel driven prototypes of the present day 220' AM's, originally designed without magnetic sweep gear but later equipped with battery sets. These, the RAVEN (AM 55), Lt. Cmdr. J. W. Stryker, USN, and OSPREY (AM 56), Lt. Cmdr. C. L. Blackwell, USN, were commissioned during November and December of 1940. As a result of the tests of these two vessels, the introduction of the magnetic mine, and British experienced, plans were re-furnished and construction of a series of new 220' AM's commenced. The first of the series, commissioned on the East Coast on 15 January 1942, was the AUK (AM 57), Lt. Cmdr. G. W. Allen, USN. The first 220' AM built on the West Coast, the SHELDRAKE (AM 62), Lt. Cmdr. W. S. Porter, USNR, was commissioned on 14 October 1942.

The first contract for the construction of the Yard Motor Minesweepers (YMS) was let on 11 December 1940, and the first was completed on the East Coast and commissioned on 27 March 1942, as the YMS 1, with the YMS 86 as the first of the West Coast, commissioned 11 May 1942.

On 30 December 1941, the first contract was let for the ADMIRABLE (AM 136), Lt. A. M. White, USNR, a new type of fleet minesweeper called the 180' class. She was the first of

her class completed, and commissioned on the East Coast on 20 April 1943. The first of the class completed on the West Coast was the BOND (AM 152), Lt. C. L. Grabenhorst, USNR, commissioned 31 August 1943.

In general terms, the above outlines the early building program for minesweepers. There was some other building of various types and many conversions, which will be outlined in the immediately to follow pages. It should be borne in mind that, as a rule, minecraft were constructed in new yards which had shortly before been swamps, bayous or dry land; or else built in small yards which had previously built a few fishing vessels or yachts each year. The organizing, or reorganizing, problems were terrific. A few skilled workmen were all that could be had as key men, who were kept busy in teaching those who wanted to learn and wanted to furnish the ships to support the Fleet and the troops in the forward areas. They could spare little time to track down the few traitorous individuals who took a job and then crawled off in a corner and slept out the shift, but a few such were turned into their draft boards. While the lack of sufficient skilled supervisors was the most serious problem, amongst the additional major difficulties were: drafting of skilled workers, shortages of all types of materials and shortages of machine tools. As could be expected, the quantity and quality of a building yard's output, other things being equal, was in direct proportion to the enthusiasm and personalities of its leading executives and of the Navy's Superintendent of Shipbuilding assigned to that particular yard. While there was a certain amount of construction carried over into the outfitting periods and many commissionings on the last day of the month, in order to boost the record for that month, the yards on the whole completed a task which could not have been accomplished elsewhere in the world. While the performance was highly creditable, waste of effort and material, and alterations in design, were unavoidable. Our entire naval history is one continuous series of building a Navy in one fell swoop. Until the lesson is learned, by the people of the United States, that the building of a Navy should be a continuing project, waste and obsolescence is inevitable. That principle holds, whether they decide to complete one ship or a hundred ships every year.

It is possibly not entirely prudent, nor even just, to pick out a few individuals from the many thousands who so materially contributed to the manufacture of the vessels and gear which made the U. S. Naval mine forces possible. It is simply a case of not being able to identify them and, also, a lack of space to mention them if it could be done. From reading an official document, one might arrive at the idea that some automaton did all the work as individuals are rarely mentioned, although we all know that a war effort is the sum of the energies of millions pulling in one direction, over the prostrate bodies of the drones, minus the sum of the



thousands pulling in an opposite direction. However, Captain E. C. Craig, USN, of BuShips had much to do with the original conception and development of the minesweepers and minesweeping gear, until he went to Noumea in 1943 for duty with Commander Third Fleet. All attached for duty to BuShips, the following officers contributed much: Captain H. C. Sexton, USN, Captain W. F. Christmas, USN, Cmdr, R. J. Summer, USNR, and Cmdr. T. H. Frost, USNR.

## 5. THE DESTROYER MINESWEEPERS (DMS).

While the list of minesweepers shown in the Atlantic Fleet Organization for October, 1941, appears rather formidable it was mostly on paper. Actually, there were available, the RAVEN, OSPREY, a few AMc's, and a few obsolete World War I Fleet Minesweepers, in addition to the five DMS's of Mine Division NINETEEN, Mine Squadron SEVEN. Likewise, in the Pacific, there were the thirteen DMS's of Mine Squadron TWO ready for use by the Fleet, and that was all. These DMS's were organized as follows:

### Mine Squadron TWO

HOPKINS (DMS 13)(FF), decommissioned 21 December 1945.

### Mine Division FOUR

ZANE (DMS 14), conv. to AG 109.  
WASMUTH (DMS 15), sunk in Alaskan storm.

TREVER (DMS 16), conv. to AG 110.

PERRY (DMS 17), mined sunk, Pelelieu.

### Mine Division FIVE

CHANDLER (DMS 9), conv. to AG 108.

SOUTHARD (DMS 10), grounded during typhoon, Okinawa.

HOVEY (DMS 11), sunk

Lingayen.

LONG (DMS 12), sunk

Lingayen.

### Mine Division SIX

DORSEY (DMS 1), grounded, typhoon, Okinawa.

LAMBERTON (DMS 2), conv. to AG 21.

BOGGS (DMS 3), conv. to AG 19.

ELLIOT (DMS 4), conv. to AG 104.

### Mine Division NINETEEN, originally of Mine Squadron SEVEN

PALMER (DMS 5), sunk Lingayen.

HOGAN (DMS 6), conv. to AG 105.

HOWARD (DMS 7), conv. to AG 106.

STANSBURY (DMS 8), conv. to AG 107.

HAMILTON (DMS 18), conv. to AG 111.

For the first two years of the war, the vessels of Mindiv 19 were used mainly as anti-submarine (A/S) escort vessels in the Atlantic, except during the invasion of Africa, where they performed sweeping services for the invasion forces. In December, 1943, the Division was sent to the Pacific, amalgamated with the other DMS's and became a part of Mine Squadron TWO, retaining its original divisional number. At this time, Cominron TWO, Cmdr. W. R. Loud, USN, returned to the West Coast, from the South Pacific, in order to supervise the sweep training of the Division; and he and they staged from San Diego, California for the assault on Kwajalein.

Until the assault on Tarawa, 20 November 1943, when other types became available and increasingly so as time went on, the original thirteen DMS's of Minron TWO bore the brunt of the assault sweeping. They, with Mindiv 19, were continued for each assault until after Lingayen, but they then had help. While subject to all types of enemy attack, they cut their first enemy mine at Kwajalein and first found mines in quantity at Pelelieu, Palau Islands. After Lingayen, most of those that were left were returned to the rear areas for conversion to AG's, leaving only the DORSEY, SOUTHARD and HOPKINS as DMS's of which only the HOPKINS was finally decommissioned as a DMS, the final member of a sort of "last man club" and the last of the old World War I four stack destroyers converted to minesweepers.

The conversion of semi-modern destroyers to DMS's had been requested by Captain Whitemarsh, but it was not until late in 1944 that any destroyer types could be spared for that purpose. The conversion of the first was completed at Boston Navy Yard on 20 December, 1944. This was the ELLYSON (DMS 19) (ex-DD 454), which had first been commissioned on 28 November 1941. All subsequent DMS's were of similar construction, the 1630 ton Class. This group was organized as follows:

#### Mine Squadron TWENTY

##### Mine Division FIFTY-EIGHT

MACOMB (DMS 23), moderate damage, Okinawa.  
FORREST (DMS 24), severely damaged Okinawa, decom. 30 November 1945.  
FITCH (DMS 25), grounded, Ulithi.  
HOBSON (DMS 26), severely damaged, Okinawa.

##### Mine Division FIFTY-NINE

ELLYSON (DMS 19) (FF).  
HAMBLETON (DMS 20), moderate damage, Okinawa.  
RODMAN (DMS 21), severely damaged, Okinawa.  
EMMONS (DMS 22), sunk, Okinawa.



## Mine Division SIXTY

JEFFERS (DMS 27), minor damage, Okinawa.  
HARDING (DMS 28), severely damaged, Okinawa, decom. 2 Nov 1945.  
BUTLER (DMS 29), severely damaged, Okinawa, decom. 8 Nov 1945.  
GHERARDI (DMS 30).

The FITCH (DMS 25) grounded at Ulithi, during the staging for Okinawa, and was returned to Pearl for repairs, where months were spent in trying to line up one of her reduction gears. Such a task lay outside the facilities of that yard and, as it turned out, much time would have been saved if a new set had been sent to Mare Island, the exchange made there and the damaged one returned to the factory for repairs. This damage left Minron TWENTY with eleven vessels.

Prior to "D Day", the only DMS to be damaged severely enough to be sent to the rear for repairs was the DORSEY (DMS 1), of Squadron TWO. Lightly gunned at best, the vessels of Minron TWENTY were further handicapped when their after gun was removed in order to install the magnetic sweeping gear. Placed on the picket line after "D Day", these vessels shared with Mine Squadron THREE the doubtful honor of becoming the most decimated squadrons of the Okinawa Campaign. The punishment received by both squadrons was terrific, but they both returned as they received and wrecked havoc with the enemy air forces. Naturally, due to their superior gun power and control facilities, the vessels of Minron THREE inflicted the greater damage on the enemy, but in proportion to their fire power, Minron TWENTY did as well. As time healed the scars caused by the loss of so many fine shipmates, it was annoying to find that the Navy Department public relations personnel considered the vessels of these two squadrons to be destroyers. Destroyers have innumerable pages of glory of their own and their personnel would be the last to desire that such errors be made.

When the Campaign was won, there were four DMS's, out of the eleven of Minron TWENTY in the front line ready for service, and two of these had received minor battle damage. One had been sunk and six had been returned to rear areas for repairs to battle damage of varying severity. Early, it was seen that the Squadron could not be effectively restored to strength in time for the invasion of Japan, so conversions were commenced to an additional twelve 1630 ton destroyers, and organized as Mine Squadron TWENTY-ONE as follows:

### Mine Squadron TWENTY-ONE

#### Mine Division SIXTY-ONE

MERVINE (DMS 31)  
QUICK (DMS 32)  
DAVIDSON (DMS 37)  
THOMPSON (DMS 38)

#### Mine Division SIXTY-TWO

COWIE (DMS 39)  
KNIGHT (DMS 40)  
DORAN (DMS 41)  
EARLE (DMS 42)

## Mine Division SIXTY-THREE

CARMICK (DMS 33)  
DOYLE (DMS 34)  
ENDICOTT (DMS 35)  
McCOOK (DMS 36)

In view of the surrender, which could not have been foreseen with certainty as to date, although all knew that the enemy had to fold sooner or later, it was unfortunate that time and material were used to install magnetic sweep gear. That was the bottleneck and such installation incurred many delays, due to the critical nature of its supply, and the vessels of the Squadron did not commence to arrive at Okinawa until after hostilities had ceased, and then without training in sweeping. Practically all of their personnel were either destroyer people or recruits, but each vessel did have a mine-sweeping officer of more or less experience. Vessels of this Squadron, plus remnants of Minron TWENTY, swept the Van Diemen Strait Area, lying South of Kyushu, a portion of Tsu Shima Straits and the major portion of the Yellow Sea mine barrier, to a limited depth. There were no other areas suitable for their use and, in fact, their sweeping of Tsu Shima was discontinued after three days of operations, as the mines had been planted at a depth approximating the maximum depth to which their gear would sweep. After three days of operation, five DMS's replaced their gear from an LSM, emptying the entire load of gear which had been estimated as sufficient to support the entire force of DMS's for the operations that were in sight. There just was not sufficient gear to support such losses, so the DMS's were pulled out of that particular field.

The DMS's were conceived as fast vessels which could accompany a striking force, and then sweep in that force into minable waters to the objective desired. Their habitual use for other purposes was because other types were not available and they were not needed at first in their original role, as waters were usually so deep in the Pacific that a striking force could rarely approach minable waters, until the Continental Shelf of Asia was open to them.

As sweepers of moored mines, the swept path of the DMS at high speed is quite narrow. At slower speeds, although somewhat higher than that of an AM, their path is wider but still not as wide as that of an AM. In a given period of time, the areas covered by a vessel of each type are about equal. The advantage of the DMS is to reach an area with dispatch. The advantages of the AM are: endurance as to fuel burned; the much greater depth at which it is possible to sweep; economy of personnel; and, economy in construction, facilities, material, time and money.

The future of the DMS should receive serious study by the best tacticians that the Navy possesses, as well as by the Staff and students of the Naval War College, and by experienced



mining and minesweeping officers. If a future war be forced upon us, the types of mines which will be used cannot be foreseen, except that the possible permutations and combinations are almost limitless, which leads to the view that we have not seen anything yet. The immediate problem is: should the magnetic sweep gear be retained in the DMS and accept the impaired fire power?

During the war, no DMS was risked in a known influence mine field, although exploratory magnetic sweeping was forced on many, due to the lack of other and more suitable types. Under such conditions, it is presumed that, in most cases at least, operations would have continued had such mines been found, accepting the losses which would have occurred. Such explorations as were conducted were outside of the original tactical conception of the DMS, which means that they were not used for magnetic sweeping for striking forces. This does not mean that we cannot conceive of a proper tactical use for high speed magnetic sweepers. It is a case of weighing in the balance all conceivable issues involved and the points of view of many students.

#### 6. THE COASTAL MINESWEEPERS (AMc).

In addition to the 35 fishing vessels converted to coastal minesweepers, AMc's 36-110 were constructed of wood and commissioned. Four of the latter 75 vessels were later changed to underwater detection vessels, as well as two PCS hulls converted and designated AMc 203 and 204. No attempt at engine standardization was made for these vessels and any available diesel engine was used.

While the AMc's rendered valuable and essential services in keeping our ports open and clear of enemy mines, were used in such places as Iceland, Alaska, Hawaii and as far away as Noumea, they were essentially coastal defense vessels. As such, they are "beyond the scope of this work", although, in the early days of the war, a few AMc's were attached to the Atlantic Fleet until more suitable types were available.

#### 7. THE FLEET MINESWEEPERS (AM); 220' CLASS AND THE 180' CLASS.

On paper an AM appeared to be an AM, sometimes making a formidable array of sweeping strength, but, actually, this designation was used alike for the obsolete Bird Class and the 173', 180' and 220' classes; the tactical limitations of all being quite different, not to mention certain fundamental differences in the engineering plants which required different stocks of spare parts. The first two classes were eventually eliminated, but it still left a rather confusing situation. Although a series of four or more AM's of a class would run

consecutively, no specific block of numbers were assigned to either class, nor was any other designation used. One just had to know which ships were which, or else to know to which squadron she was assigned and then know the squadron. It is suggested that an extra letter might well be added to the designation of one class or the other; for instance, the 220' Class might bear the designation AMF'.

As previously indicated, the 220' Class had the advantage of having had pilot models for test study. Also, it was designed by the first team, with all the years of experience of BuShips and of an established Navy Yard behind them. While the design and construction could not be called leisurely, still, the situation was far from being hectic, as it was when the 180' Class was taking shape. Not that the 220' Class was perfect, yet it was built for years of naval service, well finished, had some of the small conveniences that mean so much to a crew that has to live on board over a period of years, and it had graceful lines.

On the other hand, the birth pains attending the 180' Class were severe and felt by many people. BuShips was swamped with work and, for smaller vessels, employed design agents, some of whom were naturally more capable and more experienced than others, but all available had to be used and some even had to be developed. The original design agent selected for the 180' Class, unfortunately, lacked the organization to cope with the task, on top of which was the sad fact that the yards building the vessels were all as new as the plans and had to have specific and perfected designs. Construction met with serious and intolerable delays, due to the inexperienced yards, the difficulty in obtaining material and due to faulty plans. Captain W. R. Dowd, USN was sent to Chicago, Illinois, with 150 draftsmen from New York Navy Yard, to overhaul the plans, put them into workable form and, also, to see how the material supply functions could be strengthened. Against their own personal desires, but patriotically accepted by them, the Pullman Car Co. was designated as the new design agent and Captain Dowd stayed on at Chicago as the Navy Superintendent of Shipbuilding. The Pullman Co. was selected because of their wide experience in general and mechanical planning and because of their great knowledge of purchasing in large quantities, not that they knew anything about building ships. The Navy supplied the know-how for the latter.

The extremely sound basic idea behind the 180' hull was to turn them out in quantity, as a war time product of limited life, and, if the need arose, finish them as other types merely by a different arrangement above the main deck. There was to be no fancy work of any kind and, as long as the strength was there, no industrial effort was to be wasted in giving the vessel a finished appearance. While mainly used as an AM, in reality this hull was used for: the BUTRESS (ACM 4), a mine recovery vessel, used mainly in



experimental work; YDG's, degaussing vessels; PCE's, Patrol Craft, Escort; and PCE(R)'s, Patrol Craft, Escort, Rescue, used primarily as unmarked combatant hospital ships, lying outside the Geneva Convention, for evacuating wounded from assault beach heads and rendering them any emergency surgical aid required prior to their being placed on regular hospital ships, or placed on larger combatant hospital evacuation vessels, which latter type likewise lay outside the Geneva Convention, were armed and bore no distinguishing markings of any kind. The PCE(R) 858 was used by CominPac in post hostilities sweeping.

It is, of course, much easier to realize that one has the effects of poison ivy, than it is to notice, identify and avoid the shrub. The layman to ship building often marvels that ships go together as smoothly as they do, with all pieces fitting into place and with no parts left over. In pointing out where the results fell somewhat short of what could have been reasonably desired, it is not done with a super-critical attitude, nor is it from a lack of appreciation for placing in our hands two splendid types of minesweepers. The comfort of these serving in the 220' AM's was greater than those in the 180' AM's, and of both greater than those serving in YMS's and smaller types. The inconvenience of all were infinitely less than those in the fox holes, the trenches, or even the advance bases. Unavoidable inconveniences were accepted without giving them a thought. It was only those which were repeatedly built into ship after ship, when it was just as easy to eliminate them as not, that became annoying.

Like the Stock Exchange, where change is the only certain thing about it, the nature of the war was changing and developments to meet those changes made alterations to the original design of any combatant vessel inevitable. This fact, coupled with the history of the unfortunate original design efforts, made it inevitable that some changes in the 180' AM would be necessary if it were to function as an effective unit. It was a far cry between the original, the USS ADMIRABLE, and those that were put out during the summer of 1944, and later. As a matter of policy, the design of the 180' hull was "frozen" and the rule laid down that no changes were to be made which would delay the departure of the vessel, unless it were an item of urgent military necessity. It is appreciated that a moderately firm policy in that respect was necessary, or vessels could be delayed for weeks. As it was, yards, hard pressed from all angles, found it very convenient to use any changes made as an excuse for delays in construction which would have occurred in any case. Output was the largest object on the horizon of the local Superintendent of Shipbuilding, so if there was any chance of a delay, a new feature would not be incorporated. It is held that the general policy should not have been so hide-bound, but that each case should have been decided on its own merits. As the policy worked out, some changes were over a year, in the making and vessels continued to be built

with unacceptable features, causing essential changes to be made at other yards which, after all, came out of the pool of the Nation's industrial war effort. Another obstacle was the artificial shortage of silver, caused by Treasury buying for burial at West Point, which hampered electrical installations and the manufacture of bearings. It was not until mid way through the war that the Silver Bloc would allow the "loan" of silver for the duration of the war. In spite of everything, the major "bugs" were eventually worked out of this Class and the 180' AM became a very excellent minesweeper, uncomfortable it is true, but they performed their duties brilliantly. The Republic may be grateful for the efforts of the Pullman Co., and they and BuShips may well be proud of developing a new and essential type under extremely difficult conditions.

Commencing with the AUK, the 220' Class were electric drive to two shafts.

There were four diesel engines, of which one in either engine-room could be used to actuate the magnetic sweep gear. Each shaft was driven from its own engineroom by means of two variable pole motors, making several electrical combinations possible. There were 18 constructed for Britain under lend lease, as BAM's, with main engines by General Motors. For the U. S. Navy, 29 were constructed on the East Coast and 20 on the West Coast, for a total of 49. In addition, the two prototypes, the RAVEN and OSPREY, were constructed on the East Coast, using Fairbanks-Morse main engines, driving through reduction gears. Of the 49, the main engines were as follows: General Motors 20; Busch-Sulzer 12; American Locomotive 9; and Baldwin Locomotive 8. In the earlier vessels there was considerable difficulty with the valve stems snapping in the light weight, three cylinder, 100 KW, auxiliary prime movers, but this difficulty was later overcome. Also, there was at least one explosion in this type of engine, caused by personnel failing to keep certain chambers well cleaned in accordance with the instruction booklets. The distillers were operated from a boiler, designed for railroad operation, and there was considerable boiler difficulty, which would have been greatly lessened had spare parts been more readily available. This Class was somewhat pressed for crew's accommodations, under war time operation, but probably no more so than were the destroyers. The storeroom spaces were excellent, with the single commissary storeroom probably too large, as viewed from a damage control angle. The refrigeration boxes were excellent and larger in proportion than in most combatant types, but in MinDiv. THREE the builder's yard failed to solder all the joints and screw heads of the interior sheathing, which caused quantities of food to spoil over a period of some months. This Class has little excess stability. It is difficult to say in advance as to what a mine explosion will do to a vessel, there being so many factors involved. Several of this Class were mined during the war and most of these sank, although it took two Japanese mines to sink the SKYLARK (AM 63), Lt. Cmdr. G. M. Estep, USNR, off Okinawa. From these



explosions, without any great certainty as to its correctness, the impression is that the point of weakness of these vessels lies at the after engineroom bulkhead. Those mined aft, and most of those so mined were, sunk. On the other hand, the SWALLOW (AM 64), Lt. Cmdr. W. F. Kimball, USNR, was busidoed amidships at Okinawa, undoubtedly opening both enginerooms to the sea, rolled over in short order and sank.

The 180' Class had two enginerooms also, each with one main engine of the same general type as used in the 220' Class, in some cases the identical engine, driving its shaft through a reduction gear. Thus, they had half the horsepower of the larger type. There were 10 built on the East Coast for the Russians under lend-lease, with American Locomotive main engines. For the U. S. Navy, there were 56 built on the East Coast and 57 on the West Coast, for the total of 113. A few of these were later disposed of under lend-lease, the AM 359, was converted to YDG 11, and the AM 214-215 were made into "Sperrbruecker", a German word meaning "blockade breaker" and the name given by them to a type of minesweeper that they developed as a countermeasure against Allied influence mines, but they were not effective for use against the German influence mine. Of the 113 of this Class, the main engines were as follows: Cooper-Bessemer 84; American Locomotive 20; and Busch-Sulzer 9. There were many more of this Class contracted for, but the contracts were cancelled. The magnetic sweep gear was actuated by an auxiliary DC generator, which could not be used for an auxiliary standby for the vessel as she was equipped for 440 volt AC power. There was only one fundamental defect in the engineering plant, and that could have been corrected by the installation of an oil pump driven from the main engine. As it was, if the vessel lost all auxiliary power, as the YDG 9 did, then the vessel stopped, as the oil necessary for the clutch to the reduction gear came from an electrically driven pump. Such a pump was necessary as a standby, but the main pump should have been clutched to the engine; or vice versa. The earlier of this Class had two 60 KW auxiliary engines in the forward and one in the after engineroom. It was necessary to use two of these three continuously at sea in order to carry the load, and two in port for all but about six out of twenty-four hours. If the forward engineroom were flooded, cooking would cease and ventilation would have to be secured. At least in the Pacific, the original idea was to substitute a small 100 KW generator, similar to those used in the 220' Class, in the after engineroom, in order to more nearly equalize the two sources of auxiliary power. There was room for such an engine, but somewhere along the line, a monkey wrench was applied to the idea and later vessels blossomed out with a behemoth 100 KW in the forward engineroom in addition to one 60 KW, giving them 160 KW forward and still with only 60 KW aft. This new engine was of a radical type of tremendous size per horsepower, and no spare parts were ever to appear. It was not long before those so equipped were down to their two 60 KW's and they were down to stay. While this condition

presented no particular maintenance problem, as nothing could be done other than to secure the engine for good, there were two other engineering problems which caused these vessels more headaches than all the enemy mines ever did. Let us hasten to add that the fault lay with the Navy procurement and logistics systems, as affected by over-riding priorities, not with the manufacturers.

The prime mover for the 60 KW generator of the 180' Class was a 'Cummins' diesel truck engine, and a really excellent engine, "souped-up" by means of a supercharger. The bearings and oil seals for the supercharger, trifling things from a production point of view, were supposed to be changed after a certain specified number of hours, but the parts were never available in anywhere near the quantities needed. As a result, the rotor of the supercharger would drop, either wrecking it or the coupling to the engine, but usually wrecking both. A replacement supercharger would be months in arriving and the machine could not be pralleled without it, so was useless. Oil filters for these engines were rarely obtainable, although they were supposed to be changed every twenty days of operation. Piston rings could not be had and it was not uncommon for a Cummins to have 10,000 hours on it, and still no new rings. Using the conservative figure of 30 miles an hour, this would be the equivalent of 300,000 miles of almost continuous operation, without new rings, on the highway for a truck. It is believed that no truck ever accomplished such a feat. It would be unfair to claim as typical the notorious case of the FACILITY (AM 233), Lt. C. R. Jennette, USNR, and the STRENGTH (AM 309), Lt. W. D. White, USNR, as that was a comedy of errors to which many contributed and all admitted the errors. Nevertheless, they left Okinawa on 16 April 1945, for repairs to their auxiliary generators, repairs which could have been accomplished by the ship's forces in two or three days, had they had the parts. These two vessels were off the line for over six months. The TRIUMPH (AM 323), Lt. Cmdr. C. R. Cunningham, USNR, then Lt. W. T. Bell, USNR, a 220' AM, had but one main engine out of four available because of erroded flexible couplings to the exhaust pipes. Five months after they had been ordered they had not yet been received.

The second main problem was that of fresh water supply; it was never anything but critical and it is a wonder that epidemics did not break out. The Kleinsmith Distiller, manufactured by Badger Co., was a good distiller but its capacity was not great enough, acid and acid cleaning sets were rarities, and oil seals for the compressors could rarely be obtained. The sets and acid were promised, but never materialized in anywhere near the quantities needed. In fact, had not ComAdCominPac (Commander, Administrative Command, Minecraft, Pacific Fleet) shipped acid out from Pearl in MinPac vessels and had not the AM's used their own distiller pumps to circulate the acid, to the detriment of the pumps,



we could not have operated. The PCE(R)'s each had two distillers manufactured by the same company, with straight tubes which could be cleaned mechanically if that became necessary, and they were each of a nominal 1000 gals. daily capacity. The 180' AM had two distillers, each of a nominal capacity of 750 gals. daily, but they could distill less than twenty hours a day as they had to be washed out for four hours a day. Also, it took time to bring the distillers up to a productive heat after that washing, running to over one hour in cold waters. Further, they produced at their nominal hourly rating for only two or three days after cleaning, gradually dropping in capacity until they finally and abruptly stopped. Finally, it was only rarely that a hand cleaning could be successfully accomplished. Usually, such attempts ended in the total destruction of the coils and hand cleaning should only be attempted by well skilled personnel, and only then as an act of desperation. While mainly relying on the water in their tanks,, the submarines used the 750 gal. type successfully for years, although toward the end of the war they were being shifted over to the 1000 gal. type. But, the sub-mariners had learned to take care of their own, which others must do. Each time that a submarine returned from a patrol the units were removed for overhaul, whether they had been used or not, and replaced by thoroughly cleaned and overhauled units. Oil seals were replaced at that time, regardless. A 180' AM needs 15 gals. of acid for every three weeks of operation and a YMS, with one unit, needs half of that amount. Which means that a force of 100 AM's and 200 YMS's needs 3000 gals. of acid every three weeks, plus 25% as a reserve. AM's and many other types need comparable amounts. It would be a simple arrangement to have the distillers own circulating pump acid proof and the piping such that half of an old submarine battery box, as the mixing and circulating tank, could be connected in with short lengths of acid proof hose. Such an arrangement, together with the 1000 gal. type for both the AM's and YMS's, an assured monthly acid supply of 20 gals. and 10 gals., respectively, and a moderate supply of spare parts, including ample oil seals which are easily manufactured, would largely solve the fresh water problem. Except for weight and space, which are not serious factors in the 180' Class, no reason is seen for the continued non-utilization of exhaust heat, while underway. It should be easy to adapt one of the commercial type diesel exhaust gas distillers to this Class. If limitations allowed only 500 gals. a day, it would still be worth while. However, such a distiller should still be considered an auxiliary, although a welcome and economical one.

As finally worked out, the other "bugs" which remained in the 180' Class were largely matters affecting the health and comfort of the crew, not unimportant factors when some 95 to 100 officers and men are closely confined for months on end. These factors were mainly dirt, to the point of insanitation, heat and noise. Diesels are inherently noisy and, as the main deck was entirely covered and without the

open sound barrier of the 220' Class between the enginerooms and the living spaces, noise had to be accepted. Insanitary conditions and, to a large extent, the heat need not have been so accepted.

The excess heat was caused mainly by the fact that the capacity ratios of the engineroom intake and exhaust ventilation systems were not in accordance with Navy specifications. The enginerooms of the 220' Class had a limited degree of natural ventilation up their stacks, could well have had more, and their enginerooms were habitually at atmospheric pressure. In addition, except during darkness and during inclement weather, their engineroom doors to the weather deck were usually kept open. With identical engines, which included superchargers, the 180' Class needed no positive pressure in the enginerooms either, although any great degree of negative pressure would have been undesirable. However, had they had a negative pressure, then the engineroom scuttles could have been left open and cool air would have been pulled through the ship. As it was, with the unbalanced blower systems, the 180' Class always had a great degree of positive engineroom air pressure, which caused great blasts of hot air to exhaust into the living spaces everytime that the entrance scuttles were opened, which was frequent.

The 220' and 180' Classes were similar so far as even a tolerable head ("rest room" to you) was concerned, with the 180' having the worst of it. Usually, the head is inspected on Saturday morning after it has been roped off for an hour or two. The time to inspect, in order to ascertain the true conditions, is during the late afternoon or evening of any weekday. With showers and wash basins in the same compartment as the other facilities, the decks were habitually wet and dirty. Improper drainage and out-of-the-way obstructions and pockets made sanitation well nigh hopeless. In addition, the galley (kitchen) of the 180' Class has similar constructional defects.

The remaining problem consists of dirt and exhaust gases. The three intakes of the 180' Class were immediately above topside deck level, assuring efficient distribution throughout the ship of all the filth and dirt of that deck. In addition, in heavy weather, such as was habitual in Alaska, the after intake had to be secured in order to keep the seas out of that ventilation system, in which case the after crew's quarters received no fresh air whatever. The exhaust gases of the main and auxiliary engines were discharged at the water line, instead of through the stack as in the case of the 220' Class. This was probably the gravest error of all, as the crew habitually breathed carbon monoxide in addition to other exhaust products. The auxiliary exhaust was even worse than the main exhaust, as the latter was partially driven away while at sea, whereas the former continued after anchoring or mooring. When nested together, as was often necessary, life on some vessels of the



nest was almost intolerable. As a by-product of the above, the 180' footer needed no calendar. At the end of four months of operation, the first of the patches were welded onto the main mufflers. At the end of twelve months, the inside baffles were gone and the outside rounded portion of the shell was 100% patched. One AM made Pearl with mattresses lashed around her mufflers and there she stayed until they were renewed. New mufflers were rarely available, although the submariners always had them. Where new mufflers were available, some repair activities burned them into three segments, in order to get them through the hatches, and welded the segments together in place, but that did not restore the cut baffles. What other activities did to ships was a caution. In one AM holes were cut through the side, ribs and all. In another holes were burned through the upper main decks, beams and all. Of course the holes were patched, but it is unlikely that the original strength and resiliency were restored. It has been suggested that new mufflers should have been equipped with zippers. Other repair activities fabricated mufflers in place, a no mean task.

While it cannot be proved, it is believed that the one-eighty is the most stable combatant vessel of the Navy, although they certainly do not appear to be. As a matter of fact, it takes some getting used to them for them to look like ships at all, as they are ugly ducklings of the Navy. Their stability no doubt arises from their rather wide beam as compared to their length. As one aptly remarked, it is rather difficult to turn over a shoe box. Be that as it may be, one passed through the eye of the same typhoon that tragically rolled over three destroyers, although the latter were almost out of fuel at the time, without ill effects to the AM other than grey hairs to the crew. Those that served in the one-eighties in the habitually high winds and seas of the Aleutian Chain had no fears whatever regarding their stability, but such was not the case with those serving there in other types of vessels. The SAUNTER (AM 295), Lt. Cmdr. J. R. Keefer, USNR, was mined in Manila Bay, had both engine rooms opened to the sea, but she was saved by the frantic and well directed efforts of the crew, with some outside help, as compared to somewhat similar damage to the SWALLOW, which sank in short order. The SALUTE (AM 294), Lt. J. R. Hodges, USNR, the second and last one-eighty to be mined and the only one sunk from any cause during the war, although several suffered severe battle damage, was mined off Borneo and was kept afloat by the ship's company for seven hours, although her back was broken and divers found the forward engine on top of the after, having been blown up through the decks.

The two-twenty and the one-eighty each has her own particular advantages over the other, and their characteristics and limitations should be further compared. The two-twenty took longer to build; was much more expensive; electrical equipment of all types were critical during war days, although



the one-eighty had about as much except for the electric drive; were an engineroom flooded, the material, cost and lost time for re-conditioning the electric drive and two main engines, as compared to one, would be much greater; she has a larger turning circle, thereby being somewhat less maneuverable; and, she draws about one more foot of water than the one-eighty. The personnel required for each is about the same, although more of the war time critical ratings of electrician's mates are required for the two-twenty. On the builder's trials, the two-twenty made about four knots more speed, but this differential is reduced to about two knots if both adhere to the speed limitations laid down by BUSHIPS. Regardless of days out of dock, the two-twenty has no difficulty in dragging oropesa gear, streamed from both sides, at the designed speed for the gear. A newly undocked one-eighty can tow the gear from one side at that speed, but is reduced when both sides are out. After being out of dock about four months, a one-eighty can be expected to oropesa sweep to one side at about one knot less than a two-twenty, and about a knot and a half less with both sides out. Thus, from a sweeping point of view and being able to steam at more desirable fleet speeds, the two-twenty more nearly approaches being a Fleet Minesweeper. As a straight work-horse at minesweeping, there is not a great deal of choice and, in the large fields at least, it was seldom that they were of such shape that the two-twenty actually accomplished much more in a day's work. Under given conditions they could, yes, and sometimes did. Neither type are as safe as a YMS in an influence field, although safer than a DMS would be. In the Pacific neither AM was used in such fields, although some made exploratory sweeps, always hoping that nothing would be found, naturally. In Europe some two-twenties were used in influence sweeping, and some were sunk in so doing. Such use was not a tactical error because one has so many sweepers of all types, so much time, and the troops have to hit the assault beach. One uses his forces to best advantage, and that is that. Post hostilities sweeping in Japanese waters was a horse of a different color. There, we had the YMS's and time, while important, was not the controlling factor.

#### 8. THE YARD MOTOR MINESWEEPERS (YMS).

The YMS has what are essentially yacht lines, with an extremely well faired hull. Until added topside weight got the better of them in later years, they were very seaworthy. The Design Agent, H. B. Nevins Inc., of City Island, N. Y.; the Superintendent of Shipbuilding, New York, Captain (later Rear Admiral) J.M. Irish, USN.; and the Bureau of Ships, Navy Department, may all well be proud of a happy design. The preliminary design was submitted about the first of October, 1940. Shortly later, Gibbs and Cox became design agents for a series of these vessels and added their ideas. Few original designs persisted with so few changes, although some interior arrangements could possibly be changed for future construction and fuel oil purifiers are very badly needed.

Eighty YMS's were constructed directly for the British under lend lease and labeled BYMS 1-80. YMS 1-481 were constructed for the U. S. Navy but, eventually, 158 of these were turned over to other nations under lend-lease as follows:

Britain	65	Russia	43	France	31
Norway	8	China	6	Netherlands	3
Greece	2				

Of the 481 YMS's, 36 were completed as PCS's but were eventually equipped as YMS's. YMS 344 and 480 became YDG 6 and 7 respectively.

Of the 481 YMS's, 188 were constructed on the West Coast and 293 on what will hereafter be called the East Coast, consisting of the following areas: U. S. Coast of the Gulf of Mexico; Great Lakes; Mississippi Valley; and the Atlantic Seaboard, including all the bays and river valleys connecting thereto. In other words, any waters East of the Rockies will be considered as the East Coast, and any land so located will be considered the East.

Largely, the machinery for minecraft, including the YMS's was manufactured in the East. Of the 481 YMS's, 31 had Cooper-Bessemer main engines, which were good engines but spare parts for them were not stocked in the forward areas and, for that reason, those vessels were retained in the rear areas. The main engines for all the others were manufactured by the General Motors Corporation. The spare parts for any General Motors diesel were more readily available in the forward areas than were those of other manufacturers. The main weakness of the YMS's lay in their auxiliary engines. These were not standardized, as those engines that were available had been installed, and some were of a not too good design for continuous marine use and spare parts were usually not obtainable.

Captain Sexton came out to Okinawa in early August 1945, to see where his money had gone and found but one YMS in port. In reply to his query as to where the other 480 were, he was told that for every gallon of water that left a pumping station only one drop reached the tap ten miles away. That gives a rough idea as to the principle involved, but it was not quite that bad, although many were still attached to local Section Bases, local Island Commands, distant and independent or quasi-independent sweep groups, broken down enroute or enroute to Okinawa, where they would arrive pretty much worn out from the long trek from the East and West Coasts. Actually, that one YMS was present because she was broken down and could not operate. All of the others that were locally available, which were few enough, were out on the sweep lines.

Originally designed for shore based local defense activities, they eventually pushed their way to the far corners



of every ocean of the globe. Occasionally, their name was against them when they were preparing for an extended cruise and a supply officer would say: "you can't have that, your vessel is yardcraft, it never goes to sea!" Never-the-less they did go to sea and, except for the large moored fields, often bore the brunt of the sweeping. The YMS's did practically all of the sweeping for influence mines in the Pacific, and usually had the more dangerous task of sweeping in the odd corners and along the beaches. True, at times, their size worked to their advantage, as often the enemy would withhold his fire waiting for larger game. Such was not always the case, however.

In July 1942, four YMS were assigned to Comservron SIX for duty with the Amphibious Forces. In view of their later activities, it is ironical that ComServForPac, on 29 October 1942 requested that they be assigned to someone else, since "units of Service Force rarely operate with Amphibious Force."

Not only did they receive a cool welcome, but their yeoman services have not been publicized and they are thoroly appreciated by only those relatively few who observed at close hand their habitual pre-invasion in-shore sweeping. Even the official Navy list of all U. S. vessels lost during the war lists the 21 YMS's that were sunk under the heading "Miscellaneous District Craft", which did not include the four which foundered during the September 1945 Okinawa typhoon, nor the dozen or so which were beached on Okinawa and Japan, during the September and October 1945, typhoons, and subsequently destroyed. Nor does that include those like the YMS 92, Lt. C. C. Montgomery, USNR, mined and so badly damaged that they were not repaired, due to cessation of hostilities. This compares with 24 "Mine-sweepers" in the same list, not including the MINIVET (AM 371), Lt. R. T. Irvine, USNR, mined and sunk in Tsu Shima Straits in January 1946. Thus there were 25 YMS's and 25 Fleet Mine-sweepers (AM's and DMS's) actually sunk prior to the completion of the postwar sweeping. Additionally, one CM, two DM's and two PGM's were lost.

By March 1944, Comservron SIX found himself with 62 YMS's and 17 net tenders (AN) on his hands. The more weight of numbers presented problem enough just keeping track of them, so Comservron SIX requested that they be formed into squadrons. A conference between members of the Staffs of CincPac and ComservPac resulted in the suggestion that those two groups of vessels be cared for by additional officers on the Staff of Comservron SIX, who could also act as task unit Commanders when the operational need arose.

In April 1944, Lt. Cmdr. M. T. Lambert, Jr., USNR, reported to Comservron SIX as "Type Commander YMS vessels assigned to Service Squadron SIX", with duties somewhat "similar to those of a Mine Sqaudron Commander", including operational



planning and training for YMS's employed in amphibious assault sweeping, and the administration of matters pertaining to material, minesweeping, operations and gunnery, reports of fitness, and policy, for all Motor Minesweepers assigned." There is no doubt that Lambert should have been at least twins, as the above was a very large order for one man to handle such details for 60 odd YMS's, which constantly increased in number like rabbits, reaching 134 YMS's by the time Cominpac took over on 15 October with many more to follow. During August, 1944, Lt. T. W. Burns, USNR, became his capable assistant.

As things worked out, Lambert went forward almost immediately as a task unit commander for the Marianas Campaign, and later for the Iwo Jima Occupation, the Okinawa Campaign and post hostilities sweeping. All of which made him the outstanding expert on the needs of the YMS in the field, but it left administrative matters somewhat up in the air back at Pearl. Too, Lt. Burns went forward to assist during several assault sweeping operations.

Overwhelming power is the key to success for any assault, with a minimum of losses. So too, mere weight of numbers assured that there would be YMS's on the line in operable condition; but, it is held, that that was not the economical use of forces to expedite operations. Especially towards the end of post hostilities sweeping, aggravated by the demobilization of experienced personnel, many YMS's were inoperative. Designed for short range operations, the YMS needed all the help that she could obtain, but there was precious little to pass around. As explained elsewhere, YMS squadron organization was slow in arriving and never became effective. As explained elsewhere division organization was necessary, including a division engineer officer, as seven vessels are about all that one person can administer in detail, be intimately familiar with, and for whom to take preventive corrective action.

#### 9. THE 173' MINESWEEPERS (AM).

In a frantic attempt to quickly build up a sweeping force to support the Fleet, 18 steel hulled 173' patrol craft were converted and designated AM 82 to 99, inclusive. These vessels had either Cooper-Bessemer or Busch-Sulzer main engines. The first one converted on the West Coast was the ADROIT (AM 82), Lt. E. G. Bemis, USNR, and commissioned 28 July 1942, but did not report for duty until the fall, due to delays in outfitting. On the East Coast, the first of the Class was commissioned on 31 August 1942, as the DESPITE (AM 89) (ex-PC 1593), Lt. Cmdr. H. E. Ferrill, USNR.

The 173' AM's of the East Coast were attached to Service Squadron FIVE, Service Force, Atlantic Fleet, whereas those of the West Coast were divided between the Aleutians and the South Pacific. All proved generally unsatisfactory and, in particular,

top heavy due to added topside weights. Eventually, during the summer of 1944, these craft were released and converted back to patrol craft, after the sweeping forces had been built up somewhat by more suitable types.

#### 10. THE SUBMARINE CHASER MINESWEEPERS (SC).

In anticipation of inshore sweeping during the projected invasion of Kyushu, CominPac requested that twenty of the faster wooden hulled SC's be made available and equipped with size 5 American or German gear, the latter having been captured in quantity in Europe. Six SC's were made available, with the understanding that the remainder would be furnished if the first batch proved successful. The remainder were eventually furnished, but arrived in Japan too late to use.

The SC's chosen were equipped with diesel main engines of a new and radical design, with an enormous output per pound as compared to the conventional type. The engine was geared to the shaft, through a set of 90° bevel gears. If misalignment ever occurred, the chances were that one had a "lemon" on one's hands from there on in. Also, an engine overhaul could not be performed on board, but rather, a replacement engine had to be installed and the old one overhauled in a shop. Finally, the least trace of water in the oil would wreck the injector tips, which were very expensive and obtainable in only very limited quantities. These shortcomings were all thoroughly understood but it was felt that if the ship only last three days, leaving then on the end of a tow rope, that she would have performed her function and have been well worth while. If she did not last three days, we would be no worse off than if we did not have her.

Actually, the only serious difficulty encountered with these sweepers was with water in the oil, and oil without such pollution was seldom obtainable from tankers, and there was no shore based supply in the forward areas. Black oil ships can burn a limited percentage of water and AM's had centrifugal oil purifiers. The YMS's and smaller had no purifiers. While oil pollution was a great factor in unsatisfactory YMS performance, it was fatal to the SC and one SC used over fifty injectors in one short operation, at the end of which she was finished as there were no more injectors. Those fifty injectors probably cost more than a purifier, and the ship still did not have one. The only reason for non-installation was their critical nature of supply, but the ships should not have been built in the first place if all necessary parts could not be furnished.

The SC's were trained and their operations conducted under the able direction of Lt. C. J. Schuh jr., USNR, who had experience with that type of gear installed in LCM's sweeping in the Mediterranean.



Conditions changed between the time that Admiral Sharp requested the SC's and the time they were ready for use. Instead of inshore work, they were used ahead of the regular sweepers, in order to safeguard the latter. They were fast enough to use ahead of even the DMS's, at their normal sweeping speeds, and drew about two feet less water than did an AM. Sweeping to thirty feet and not cutting any mines, whereas the DMS's or AM's sweeping to greater depth were, proved a case depth of over thirty feet. It is not believed that an SC actually cut a mine, but the negative information attained was of great value, as well as their morale factor to the leading DMS or AM, for post hostilities sweeping. There is a great different in the point of view of personnel so engaged and the same persons engaged in sweeping during hostilities. However, no comments are available as to the reaction of the crews of the SC's.

If operations ever again become necessary in moored mine fields and assuming that oil purifiers are installed, it is believed that the SC sweeper has a future, but not as used in Empire waters. For inshore shallow field, particularly if they be somewhat irregular in shape which they usually are, where maneuverability and speed is desired, their capabilities can hardly be approached by other types. However, it is believed that the protection of the leader of a sweep formation can best be accomplished by means of the improved super-sonic obstructor locators. All one can ask for is protection for the leader from practically dead ahead, and the improved model will do this but the SC interferes with such equipment.

The SC must, however, be furnished with a power winch. Improvisations to convert the winches to power were sent out by ComAdCominPac but received too late for general use, although two such were installed.

#### 11. THE SMALL BOAT SWEEPERS.

The small boat sweepers are of two improvised types: those with the oropesa gear and those with magnetic gear. The limitations of either type are so severe and the results obtained have been so meager, that it would be difficult to say that either type was even moderately successful. Undoubtedly, results would have been much better had small boat specialists been developed and stayed in that specialty throughout. In each case of which the details are known, the sweep crews were new to the game with the merest modicum of training and with little knowledge of sweeping or of sweep gear. At best, small boat sweeping is slow and inefficient, with the firing line a poor place for men to learn to sweep by the trial and error method, yet that was practically what past efforts amounted to.

War experience has shown that only the LCM and the LCP(R) of the standard small boat hulls, are adaptable to small boat sweeping. The LCM has the power and strength for sweeping, can be armed and armored, but station keeping is very difficult



because of limited vision ahead and, being of steel, is hard to degauss if it be desired to convert it to a magnetic sweeper. The LCP(R) is relatively lighter and can be carried by an APD. The coxwain has better visibility, it is mostly wood and easier to degauss, but it is structurally too weak for rugged and continuous minesweeping duties. A mother ship is essential for the LCP(R)'s in order to hoist them in when they are not being used, keep them in repair and to house the crews.

As far as can be determined, no small boat sweeper has ever conducted a successful assault sweep, yet the need was great. Navigational difficulties with either type are so great that little more than an exploratory sweep can be expected, unless repeated coverages are made. BuShips drew up plans for a type of permanent small boat sweeper, which appears to overcome many of the difficulties encountered. By all means, a few of these should be completed and experiments continued.

In the Mediterranean and in the Palau Islands, moderately successful oropesa sweeps were made with LCM's but it was slow and deliberate work and they were not assault sweeps. A night pre-assault sweep along the beach of Mindoro found the LCP(R)'s hopelessly lost and sweeping well out in deep water. On the West Coast of Okinawa, LCP(R)'s with assigned crews did some sweeping with negative results. In Nakagusku Wan (Buckner Bay), Okinawa, after most but not all of the shooting was over, four LCP(R)'s were dropped, without crews or a mother ship. Lt. Scott McFarland, USNR, with crews collected from the local minesweepers and none of whom had ever seen the gear before, made a creditable showing after three days of trial and error and checked along the beaches and through the lower harbor entrance, with negative results. To prevent a re-occurrence of former deficiencies and in order to check the beaches for the projected invasion of Kyushu, Admiral Sharp requested that 28 LCP(R)'s be made available, that crews be assembled and trained at Pearl, and that APD's be provided to act as mother ships. This program was approved, except that the APD's would carry the small boats to the scene and then leave, an arrangement which would have given unsatisfactory results, as proven at Okinawa. CominPac finally received the boats and crews, with four APD's, but the crews had no real training in minesweeping. The APD's were only furnished because they were no longer needed for an invasion which had been cancelled.

The four APD's brought twenty of the LCP(R)'s to Okinawa and merchant types brought the other eight. A collision at sea checked off one P(R), cranes dropped two and a fourth was finally broken up after days of continuous beaching in connection with post-typhoon supply activities. Others were badly damaged now and then from a variety of causes, including one waterborne hit-and-run driver and including the inevitable wear and tear from unavoidable overloading, were patched as

well as could be, with one being surveyed from time to time as beyond repairs. At the request of Commander Seventh Fleet, four were retained in the BUNCH (APD 79), Lt. E. W. Donnally, USNR, as oropesa sweepers and sent to the China Theatre, where they were used once with ill success. Incidentally, the BUNCH made several fast runs between that theatre and Okinawa with loads of sweep gear. Three months of heartbreaking work was commenced in converting the remaining LCP(R)'s into magnetic small boat sweepers, a task that should have been allotted to rear areas.

With rapid shifts of command due to demobilization, as indicated, the YDG 9, Lt. J. J. Scheffler jr., USNR, Lt. D. L. Dye, USNR, then Lt(jg) H. H. Davis, USNR, and the YDG 10, Lt. Cmdr. E. V. Donovan, USNR, then Lt. P. J. Lemmel, USNR, were assigned the task of converting the LCP(R)'s to magnetic sweepers. Ably assisted for a time by Electrician Wm. M. Saunders, USN, from the Staff of CominPac, the officers of the degaussing departments of the two YDG deserve great credit for carrying out the conversions under the most trying circumstances. All members of the Naval Reserve, these officers were, for the YDG 9: Lt. D. L. Dye; Lt(jg) N. E. Bruce; Lt(jg) J. R. Hudnall; and for the YDG 10; Lt(jg) G. A. Hornbeck; Lt(jg) G. C. Caldwell; Lt(jg) L. M. Burgess; and, Lt(jg) E. M. Banas. After the arrival of the equipment, Lt. Bruce particularly interested himself with developing the diesel engine powered sweeper.

The magnetic conversions commenced about 15 September 1945, and by the middle of December were completed. Harrassed by demobilization, personnel was obtained from MAD 8, by use of the entire sweep crew from one APD and from unassigned personnel; with the CEBU (ARG 6) and the Sea Bees aiding by repairing boats and making carrying sleds and covers for storage batteries. While NMWTS, Solomon's Island, Md., had experimented with conversions for an LCM, the results of these experiments were not available. A wiring diagram for the sweep was available, but the outline for the degaussing of the LCP(R) was only in general terms. This meant that a pilot model had to be converted and experimented with, over a degaussing range which had to be built, before conversions could go on an assembly line basis. The deck of the boat was too weak to support the weight of the batteries and water from even a moderate chop would soak the batteries and the wiring. This meant that a non-magnetic sled would have to be built, such as could be used to lift the batteries out of the boat in a body for charging or for hoisting the boat, and that covers to ward off the water had to be devised. When all the design matters were worked out, the boats could be converted rapidly, within the limitations of the gear; of course, assuming that boat repairs were not necessary. Such repairs were usually necessary unfortunately, as the boats were in rather poor shape to start with.



The battery sets were good for not more than eight hours of pulsing between battery chargings and, the boats being greatly overloaded, sweeping could only be accomplished on rare fine weathered days. The diesel powered generator sets had been delayed and their arrival was awaited with impatience, as it was felt that sweeping with them could be continuous from dawn to dark, on a suitable day, with completion of the task perhaps possible in one day. When the diesels finally arrived they were found to be an excellent type of commercial machine, but imagine the consternation which reigned when it was discovered that batteries were still necessary in order to flash the field of the generator, rather than having a built-in exciter for that purpose. Thus, largely but not entirely, the advantages of the generator set were not obtainable, with the disadvantage of more weight in the boat than before. None-the-less, two generator sets were installed and sent forward for test, the results of which are not available at this time. Also, one generator set was supplied to each of two of the APD's, in order that they could charge batteries for small boat sweepers.

The small boats could be degaussed so well that they would not fire the most sensitive of magnetic mines that were practical at that time. The idea of the small boat magnetic sweeper was to clear the sensitive mines out of an initial channel, from which the YMS's could commence work. This would not require any extended sweeping on the part of the small boats. Such sweeping would have been desirable for all channels swept into Japan for magnetic mines, but the sweepers were not available and were only used in Kobe Harbor. Beset with great difficulties, it is doubtful that the small boats performed any useful function, other than add to experimental knowledge which, it is hoped, will not be lost. Not that the small boats could not have fired a mine within their sphere of influence, because they could have, but the Japanese sweepers aided by previous mine casualties to shipping, had already performed the functions that had been intended for the small boats.

In addition to difficulties outlined above, one APD, with its sweep crew, became rife with dysentary. The crews had to learn to sweep; navigation was most rudimentary; the magnetic cables parted with discouraging regularity, were extremely difficult to make up, handle and repair; the electrical resistance of the magnetic cables often became excessive, with the flaw in electrical contact difficult and time consuming to find; the boats broke down and even swamped; and, the weather was usually violently against them; to mention only a few of the many headaches encountered.

## 12. THE DEGAUSSING VESSELS (YDG).

Coined from the noun "gauss", a unit of magnetic measurement in honor of a German scientist, degaussing loosely

refers to all steps taken to reduce or make known the magnetic signature of a floating object, usually a ship. Coined from the word "permeability", deperming loosely refers to all steps taken to reduce the permanent magnetism of a floating object, usually a ship. The ideal is to deperm a ship so that it has no residual magnetism, then degauss her such that the induced magnetism is zero under all conditions. Actually, such an ideal has proven to be impracticable, if not impossible.

Like most problems, the degaussing problem in the Pacific was considerably different from that in the Atlantic. In the latter area, the waters allowed much more freedom for installation of ranges and deperming stations, because more suitable depths and sheltered areas were to be found in almost any local area; once installed, the activity was practically assured of continued use, because of shorter distances and constant use of nearly all Atlantic waters; installation did not present the initial serious problems because any local area was closer to the source of supply of material and transportation problems were less; and, finally, British stations were available for use by our forces. The war ended with only one first class deperming station in the Pacific, the one at Pearl, and it, unfortunately, has been reduced to a caretaker status. In the Pacific, the reverse of the above points were true, with an important station today being of no value tomorrow, and, also, the problem was not of such immediate urgency.

Degaussing facilities for advance bases in the Pacific were at first considered a function of Comservron SIX from the standpoint of being developments for bases, rather than because they were functions of mine warfare, as they were later considered. Late in May, 1942, the first degaussing officer that the Staff had had assigned reported for duty. In March 1942, Ensign K. E. Hallikainen, USNR, of the Service Force Advance Base Group, proposed that installations be made mobile by installation in small vessels. Happily, this idea was adopted in principle and the "Mobile Degaussing Unit (YDG)" in its final form was a small ship equipped and staffed to lay ranges, deperm other vessels, calibrate them, make minor repairs and adjustments to their degaussing systems, and compensate their magnetic compasses."

Ship borne installations were sensitive to ocean currents and swells, or choppy waters, but: "While YDG's could never entirely supplant magnetic ranges, they proved to be indispensable in places where ranges could not be laid due to unsatisfactory depths of water, and in expediting degaussing work at newly captured bases prior to the arrival of permanent or semi-permanent units. These units, the J-13 components of advance base groups, had of course their own distinct advantages where some degree of permanence was expected. They required fewer personnel and were more economical over a long period.



But the YDG's arrived first, assisted in installing such ranges as were laid, carried the burden of degaussing in areas where there were no installations, and were ready to move at once in the wake of the Fleet to new locations."

The first degaussing vessels were converted from Yard Patrol Craft (YP) and designated YDG's 1 to 4, inclusive. The first of these was commissioned on 24 December 1942, as a YDG 3, Ensign Jn. H. Graves, USNR. The YDG 4 grounded off New Caledonia on 1 October 1943 and was stricken from the Navy List ten days later.

The YMS's 344 and 480 were converted to the YDG's 6 and 7, with the first commissioned on 14 January 1944, as the YDG 6, Lt. Wm. d'B Van De Carr, USNR. One of these two operated at Ulithi.

Three PCE (180') hulls were converted to the YDG's 8, 9, and 10, with the first commissioned on 10 June 1944, as the YDG 8, Lt. Cmdr. C. V. Schlaet, USNR. The YDG 8 first reported to Commander Seventh Fleet for duty in the Philippines, and the YDG's 9 and 10 reported for duty to CominPac.

On 1 August 1944, Commander Seventh Fleet placed in commission the YDG 5, Lt(jg) Thos. I. Magill jr., USNR. This vessel was a former Australian coastal trader, steam driven, wooden hull. She was decommissioned at Okinawa on 7 February 1946.

On 15 August 1945, the YDG 11, Lt. Jn. B. Fallon, USNR was commissioned having been converted from the 180' hull, AM 359, and went to Guam to install a degaussing range, a task which had been hanging fire for over a year.

### 13. PRESSURE MINE COUNTERMEASURES.

Under certain rather uncommon conditions of sea swell, it was possible to sweep pressure mines just as one would sweep ordinary magnetic mines. The Japanese have been expert fishermen for centuries, trawling is second nature to them and they adapted this art to a second method of sweeping. They had some success in sweeping these mines by means of bottom trawl nets, but this method met with fair success only where the ocean floor was relatively free of obstructions. Also, they used divers, but it was usually a case of one mine, one diver. They experimented with a "barn door" type of sweep and with super-sonic location devices, but it is not believed that either of these methods gave results, but both have possibilities. None of the above methods could give the positive assurance necessary in order to declare an area "clear". Their most effective clearance was made by their shipping itself, and the toll was terrific. At great cost to themselves, the Japanese cleared their channels fairly well of influence mines, leaving

relatively few for our sweepers. This was in contradistinction to the results obtained by their moored mine sweepers, at least prior to some of them being fitted out with our gear and indoctrinated in our methods.

The Germans first introduced the pressure mine late in the war in Europe. Within sixteen days after the first word was received by BuShips, the first countermeasure was ready for shipment to Europe. This was named the "egg crate", with an official designation of "YC", followed by a different number for each egg crate. The egg crate was a large flat bottomed steel barge, made up of pontoon sections. Towed at a speed in excess of five knots over a mine, it gave a pressure signature similar to that of a ship; while electricity passing through interior coils gave it an exaggerated magnetic signature. Provided the mine was not temporarily inactivated by swell conditions unfavorable for sweeping, a properly proportioned egg crate, towed at a favorable speed, was bound to fire a mine within its sphere of influence, as it was a ship, to all effects and purposes. On the other hand, a clearance sweep with such a device was slow work. Also, almost any mine fired could damage the egg crate, which was another great drawback. However, only one fired close aboard would make the damage severe and, even in such case, the egg crate could be repaired, being of pontoon sections. Although more difficult to handle, had the egg crates been available it would probably have made the Guinea Pigs unnecessary.

A similar device was designed for construction, at advance bases, out of the ordinary utilitarian pontoon sections. This device was given the name of "cube steak", but none were ever assembled.

The first egg crate was sent to Britain in two LST's for assembly. One of the LST's was torpedoed in the English Channel, but the damages to the pontoon sections were minor and their buoyancy kept the LST afloat, allowing her salvage. The British fired one pressure mine with the egg crate, and also three or four other mines which might or might not have been pressures. Fortunately, the need for such soon became limited, as the land operations moved forward with rapidity, over-running vital air fields, and German air forces became decimated. With greater distances to travel against even increasing air opposition, with a hundred uses for each available plane, the Germans just could not carry on their deadly mining campaign.

Pontoon sections and the electrical gear for seven egg crates were started out from the East Coast to the Far East, with the first pontoons arriving at Sasebo, Kyushu about the end of November 1945. Two spoon bows were lost in the vicinity of Hueneme, Calif., to the mystification of all hands as to how such large objects could be lost, even in such a large land mass



as California. Let us hope that some GI's have cut doors and windows in them and are using them for housing purposes. Without prior knowledge of CominPac, the pontoon sections for the two egg crates and the electrical gear for all seven were returned to Guam from Okinawa, and unloaded there. There were no cranes at Okinawa large enough to handle the pontoons and the floating docks could not have been tied up for that purpose, if they had been. Demobilization precluded their assembly at Guam. The egg crates were no longer needed for our purposes, so it was decided that the Japanese would be given the task of assembling them in one of their graving docks, and would operate them for their own benefit.

It required 15,000 man-hours of labor to assemble one egg crate with the extended facilities of a U. S. dockyard. Like the conversion of the small boat magnetic sweepers, only more so, the assembly of either the egg crate or the cube steak was a burden that should never have been considered as being within the province of an advance base. They should have been assembled at Pearl, perhaps still further to the rear, and towed out from there.

Lt. A. R. Williams, USNR, was the initial expert in the assembly of the egg crate sent out by BuShips, as a member of MACTU. He arrived at Okinawa shortly after hostilities had ceased, which was entirely too early for profitable employment. After assembly had commenced, BuShips sent Cmdr. M. W. Starkweather, USNR, to Sasebo to assist. These two officers aided by Lt. O. L. Schwam, USNR, and Lt(jg) John Butkus, USNR, of Service Divisions 102 and 103, supervised the Japanese in the assembly of two egg crates and in the conversion of four Japanese Coastal Defense vessels, to be used as towing vessels. The keels were laid on 5 January 1946, and assembly of the egg crates proceeded. The average American will go to great effort in order to avoid heavy labor. In this construction it was noted that the Japanese ran true to form in doing things the hard way. Also, constant supervision was necessary to prevent inferior welding, through ignorance, or strengthening inferior welds if they were not prevented. Never-the-less, the egg crates were launched on 17 March and successful training periods and trials were held.

Having slept, ate and lived with the words Loch Ness in his ears several months and having lost ten pounds of weight over it, which could be ill-afforded, the author is hardly one to write a dispassionate account of the Loch Ness Monster. Although they did not know it, the ladies of America also "sweated out" the Loch Ness. For the edification of the lady reader, if any, the Loch Ness fabrics were of the most beautiful nylon cloth imaginable and, it is said, the total of fibres which went into their making was equivalent of twenty million pairs of hose. The unused fabrics were returned to the U. S. for salvage, either for reworking as one would rework nitro-cellulose

powder, or for cutting up and using the yardage for other purposes. For instance, such material would make an awning that would be practically indestructible.

As finally organized and placed in the field, the Loch Ness sweep group consisted of the following:

LSM 220, Lt. J. V. W. Zaugg, USNR; LCT 791, Ensign H. Fox, USNR;  
YMS 470, Lt. S. S. Rapport, USNR; YMS 396, Lt(jg) W. T. Grayson, USNR;

AMc203, Lt. J. Boehling, USNR; with Lt(jg) C. E. Burgess, USNR, of MACTU, as Swell Recorder Officer; and Lt. A. Vinograd, USNR, as the MACTU Representative. Lt. R. F. Thompson, USNR, was the O.T.C. and training officer, and had been the officer who had supervised the conversions and outfitting of the various vessels.

Under the heading "LC Tares", Chapter 22, Book 1 will be found comments on the conversions of these vessels as Loch Ness recovery vessels. It was found that recovery was rather difficult, as four or five separate bights had to be taken for each recovery. It was thought that an LSM would have been more satisfactory for such use.

The Group soon learned to handle this sweep gear with dispatch and operated it for a total of about 25 hours, in the vicinity of where a stick of pressure mines might have been dropped. The fabric stood up well; but the double strand, single catenary, electrical sweep cable, towed by the two YMS's, was not satisfactory and frequently parted.

The fact that the gear lifted no mines in the Nagoya, Honshu, Area does not prove the value of the gear one way or another, because: the sea conditions were often unfavorable, both from the standpoint of affecting the mines and of affecting operations; of the short duration of the trials; and, of the possibility of there being no mines there or, if there were, their being either inactive or outside the sphere of influence of the Loch Ness.

Admitting that the gear was not given an entirely fair trial, it is still the opinion that the mountain labored and brought forth a mouse. No other nation on earth could have afforded to expend the effort required, for so little in the way of return. The Loch Ness meets none of the three fundamental requirements considered necessary to successful sweep gear, as laid down in Chapter 26, Book 1. Some of the shortcomings of the gear were: it gives a pressure signature in only certain limited depths of water; the great economic, industrial and operational drain involved; the weakness of the magnetic gear, but not a serious defect as it could be easily corrected; it is usable only under good weather conditions; the very limited



area covered per unit per day; further aggravated by the fact that possibly as much as half the day is dead time; and, above all, the narrow path covered. Given a narrow channel with a depth of water within its sphere of influence, the Loch Ness would probably fire a mine. But, such areas are hard to find and, when found, might not be mined with pressure mines. Clearing a wide area or channel, perhaps far from land, presents an entirely different picture. The path of the Loch Ness is at the mercy of any passing current or swell, with only limited dependence on the towing vessel. Buoy as you will, a position in an open roadstead cannot be determined within 25 yards by any means within the capacity of any vessels engaged in such operations. In all but the best charted areas, such exactness could only be determined by a surveying party. Yet, 25 yards is the maximum width of the pressure signature of the Loch Ness. To blanket a mine in such an open area, the Loch Ness would need be dragged around for weeks, possibly months.

Let us give back nylon hose to the ladies of America.

#### 14. THE GUINEA PIGS.

There had been about 6,000 pressure mines called "American mines" by the Japanese, dropped in Japanese and Korean waters. While all were fitted with "sterilizers" designed to render them impotent after a time limit, there was the possibility of about 1% failures for that mechanism. If this were true, then there might be 60 live mines left in Empire waters after the sterilization date, of which perhaps 10% might lie in the channels. Any one of those possible 6 mines could sink a ship. There were several means by which such mines might be fired under given conditions, but there was no practical method which could assure complete clearance.

It was felt that it would be better to risk a few lightly manned vessels, of limited value, rather than the more conventional types, which would be carrying normal crews, probably troops and other passengers, and valuable cargoes. A request was made for three damaged vessels and Captain H. J. Armstrong Jr., USN, Comindiv EIGHT, was made CTG 52.11 and given the task of outfitting and operating such test vessels as were assigned which were to be given the name of Guinea Pigs. With current in the degaussing coils reversed, they were to thoroughly cover swept channels at relatively high speed, in order to prove that the minesweeping had been effective. In that sense, the Guinea Pigs were not minesweepers, and contrary to press reports, the last thing they wanted to do was to find a mine. Actually, they only found one.

The USS MARATHON (APA 200), Captain Alex. MacIntyre, USN, had been damaged by an underwater explosion, probably a torpedo, during the early hours of 22 July 1945 while at anchor in Buckner Bay. The SS JOSEPH HOLT and SS PRATT VICTORY were damaged merchant types belonging to the War Shipping Administration.

The JOSEPH HOLT and PRATT VICTORY were taken over, manned and commissioned by the Navy. These three vessels became the Guinea Pig Squadron, were ballasted down as well as could be, considering the difficulties involved, and distant control rods were installed through the decks in order to operate the machinery from the topside. Helmets, wooden gratings and mattresses were used to lessen possible shock. When the Guinea Pig runs were about to start, all personnel not essential to the run were landed on other nearby vessels. All personnel of the Guinea Pigs were volunteers.

With Captain Armstrong as O.T.C., the MARATHON tested the channel in the Aki Nada Area, Honshu from 4 to 11 October 1945, with negative results. Also, the Iseno Umi Area, Honshu, from 14 to 22 October.

In company with the USS JOSEPH HOLT and the USS PRATT VICTORY, with Captain Armstrong as O.T.C., the MARATHON tested the Kure Channel, Honshu, from 14 to 18 November, with negative results.

On 29 November 1945, Cmdr. J. H. Bloodworth, USNR, relieved Captain MacIntyre as Commanding Officer of the MARATHON.

From 7 to 14 December, the USS PRATT VICTORY, Cmdr. S. E. Martin, USN with Cmdr. Martin as O.T.C., checked the Nagoya, Honshu, channel with negative results.

On 21 December, Captain J. B. Gragg, USN, relieved Captain Armstrong as CTG 52.11 and as Comindiv EIGHT.

With Captain Gragg as O.T.C., the MARATHON and PRATT VICTORY checked the Izumi Nada Channel to Kobe, Honshu, from 5 to 10 January 1946, with negative results.

With Captain Gragg as O.T.C., the MARATHON checked the immediate approaches to Kobe and inside of Kobe Ko, Honshu, from 19 to 29 January, and from 3 to 4 February. During these check runs, the MARATHON lifted a mine 75 yards on the starboard quarter, which caused no casualties to personnel but knocked out all electrical power for about two hours and broke all of the cap bearings of her propellor shaft. This mine was probably a pressure mine, but there is no way of making certain of that.

From 21 to 25 February, with Cmdr. Bloodworth as O.T.C., the MARATHON checked the channel to Hiroshima Wan, Honshu, with negative results.

The last Guinea Pig to leave for home, the MARATHON departed from Japan on 27 February 1946.



15. THE UNDERWATER MINE LOCATION VESSELS (AMc, AMc(U), AND YMS).

Several types of underwater mine location methods were experimented with during the war, with the super-sonic methods giving the most promising results. Better developed gear than any used during the war is now available. While the whole project is still experimental, certain aspects are most promising.

Six LCT hulls were converted to AMc(U)'s 1 to 6 incl., with AMc(U) 3, ex-LCT 887, being the first completed, 24 June 1944. Five LCI(L) hulls were converted to AMc(U)'s 7 to 11, incl., with AMc(U) 10, ex-LCI(L) 513, being the first completed 9 December 1943. Super-sonic location gear was installed in the: INDUSTRY (AMc 86); LOYALTY (AMc 88); PRESTIGE (AMc 97); PROGRESS (AMc 98); MEDRICK (AMc 203) and MINAH (AMc 204). The MEDRICK and MINAH had been PCS's, converted from YMS's. In addition, QLA, had been installed in the YMS's 324 and 395 and, also, four AM's had had their sound gear modified for mine detection. Of the above, only the AMc's, YMS's and AM's were used in post hostilities sweeping in the Far East.

While the AMc's obtained many "strikes" on the bottom, there was no way of telling whether it represented a ground mine or not. Attempts to counter-mine each "strike" was made with a controlled depth charge, which may have caused the destruction of one or more mines but, as far as could be determined, did not cause any ground mines to counter-mine. The only fair trial of the mine location gear of the AM's was made by the AM task group of eight 220' AM's, T. G. 52.7.2, Lt. Cmdr. E. B. Knowlton, USNR, ComIndiv SEVENTEEN, which cleared over 1,000 moored mines from the area surrounding the northern tip of Honshu. Lt. Cmdr. Knowlton reported excellent results, improving as the sound personnel gained experience.

At present, it may not be practical to locate with positiveness a moored mine whose bearing is changing rapidly. However, with the latest gear and provided it is operating and operated with somewhat skilled personnel, it is believed that a moored mine can be definitely spotted if it is within a few degrees of being dead ahead. Such detection will protect the leader, which is all that a moored minesweeper can ask for. It is firmly believed that a minesweeper should never again be mined by a moored mine.

Of a somewhat different category was the device variously known as "the underwater baka bomb", or as "Page's folly". This was a non-magnetic winged chamber, in which sat a man in communication by telephone with the towing vessel. By means of rudders, he could veer to either side, or raise or lower the contraption. Looking through port holes, he could theoretically see a ground mine on the bottom, by the aid of powerful lights shining down ahead. The first difficulty

was in finding a suitably degaussed vessel with a boom that was strong enough to handle it. One of the AMC's was finally found to be satisfactory. The second difficulty was that a man could only stay down for thirty minutes, due to his cramped position and need for a change of air. Lastly, although it had reasonable success in trials in selected and clear waters off the Bahamas, the waters of Japan were too muddy to see more than two or three feet ahead. It is recommended that this device be reserved for use in suitable depths of waters in the "Spanish Main", in search for sunken treasure galleons.

#### 16. THE ACOUSTIC MINESWEEPERS.

Unlike the pressure mine, the sterilization of the acoustic mine is certain, due to a continuous drain on the batteries. As the batteries near the exhaustion point, or the mine becomes fouled with mud, sand or sea growth, the mine reaches a state where more decibels of sound are required to fire it. This condition is described by the British by stating that the mine has "dirty ears". A wide firing range of sound frequencies are available to acoustic mechanisms.

In Europe either the built-in or the towed alongside types of hammer boxes were habitually used by all sweepers, there being no independent acoustic sweepers since the early days of the war when the British were fighting alone. Acoustic mines were rather common there, whereas in the Pacific, as far as known, no acoustic mine was swept by U. S. forces. With the planting in the Pacific of two fundamentally different types of U. S. acoustic mines, it required two different types of acoustic sweeps. These were both very clumsy to handle and were towed well astern of the sweeping vessel, although some studies of acoustic mine detonations indicate that that is equally as dangerous as towing the box alongside. It had been believed that the acoustic mines in Empire waters had been "waited out", although some estimated dates of sterilization did not so indicate, but it was thought that each person forwarding the date had tacked on an extra month as a safety factor. For this reason, the acoustic sweep was purely precautionary, which viewpoint was somewhat borne out by the fact that no acoustic mines were lifted.

Although the channels would first be swept for magnetic mines, maneuvering might be necessary outside the channels so it was decided that YMS's would be used as acoustic sweepers. Estimated sterilization dates and completion of magnetic sweeping of the various channels did not simultaneously occur in the various areas. Acoustic sweeping was an affair of short duration, probably three to five days. The acoustic controller was a horrible affair to wish off on a YMS, at best, being over seven feet tall and weighing some 1500 lbs; without doubt, its designer never having seen a YMS. Rigging for acoustic sweeping was rather an involved affair to accomplish in quantity and, if done, interfered with the normal sweeping of a YMS. For these



reasons, it was felt best to rig a flying squadron of acoustic sweepers, which could move from area to area as needed.

The means sent out to the Pacific to "re-inforce" the booms of the YMS's having proven a 100% failure, two net tenders were assigned as acoustic mother ships. These two net tenders each carried a field officer and enlisted electricians mate, from MACTU, for servicing the acoustic gear. The mother ship carried spare parts for the acoustic equipment, as well as entire replacement units. Additionally, she launched and recovered the two types of acoustic hammer boxes used by the YMS's.

Six YMS's were selected for conversion, taking those with damaged magnetic tails provided they had the preliminary acoustic installation. The after magazine was cleared and the controller placed in it, the magnetic cable was well secured, wooden battens were nailed across the reel above the magnetic cables, and the power leads for the hammer box was wound over the wooden battens. Lt. Cmdr. G. W. Ashley, USNR, and Lt. Cmdr. R. W. Roop, USNR, both of MACTU, ably worked out and supervised these installations. It proved a mistake to leave the magnetic cables on the reels, as some broke loose from their lashings when the reel turned in the unwinding direction, damaging the cables. It is doubtful whether all the 1500 lbs. of controller was necessary but, if it was, it could just as well have been made into a console model, of half the height. The six YMS's were rigged to use the two types of gear interchangeably but, as each type of hammer box was unnecessarily designed for a different size of cable, difficulty was encountered in making some of the joints watertight. Also, the expensive underwater cable connectors were discarded, with the electrical splices being made with ordinary lugs and bolts; waterproofing the joints with tape.

#### 17. THE NET TENDERS (AN).

There were a total of 87 net tenders built, of which seven went to lend-lease. All had in the neighborhood of 1400 shaft horsepower, diesel-electric drive to a single shaft. AN 6-37, incl., had steel hulls and were about 150' overall, with about thirty foot beam. AN 38-77, incl., had wooden hulls and were about 194' overall with about thirty-four foot beam. AN 78-92 had steel hulls and were about 168' overall, with about thirty-three foot beams.

#### 18. THE NET CARGO SHIPS (AKN).

During 1943 and early 1944, there were a total of four Liberty Ship hulls converted and commissioned as net cargo ships. The conversions amounted to little more than installing quarters for the crew and clearing up the decks and holds of obstructions. In addition, the KEOKUK (CM 8) a railroad car ferry built in 1914 and converted and commissioned in 1942 as

CM 8, was converted in 1943 and designated AKN 4. Thus, there were five AKN's in the Navy during the war. As AKN's their war service was performed in the Pacific.

INDUS: The INDUS (AKN 1), serving with the Seventh Fleet, was anchored in San Pedro Bay, Leyte Gulf, P. I., from 23 October to 30 November 1944, serving as flagship for Captain E. P. Hylant, USN, Representative of Commander Service Force, Seventh Fleet. While there, she issued varied types of stores, as well as moorings and some buoy materials, but retained her net cargo on board. Arriving at Lingayen Gulf, Luzon Island, P. I., on 9 January 1945 as flagship for Captain T. J. Kelly, USN, Representative of Commander Service Force, Seventh Fleet, she acted as service support vessel for small ships. Moving to Subic Bay, Luzon, on 23 February, Captain Kelly shifted to the USS DOBBIN AD 3 and the INDUS commenced net laying operations with the TEABERRY (AN 34) and the SILVERBELL (AN 51), completing the operation on 10 April.

During May 1945, the INDUS was the flagship of Captain J. D. Beard, USN, Comservron FOUR, Seventh Fleet, and carried a cargo of net materials and general stores from Manus to Manila Bay. In June she went to Pearl and picked up a cargo of net materials and transported them to Eniwetok, where she engaged in net laying operations from 11-30 July and furnished net materials to the Net Depot and to the SALEM (CM 11).

After hostilities ceased, she was engaged in rolling back the net materials of Eniwetok and Kwajalein to Saipan.

SAGITTARIUS: The SAGITTARIUS (AKN 2), Cmdr. L. B. Hillsinger, USNR was converted at the Maryland Dry Dock Co., Baltimore, Md., commissioned on 18 March 1944 and transitted the Canal on 9 May 1944. Aided by the MIMOSA (AN 26) and PAPAYA (AN 49) she laid the nets at Tinian and Saipan between 6 August and 26 September 1944. Picking up a cargo of net material at Noumea, from 11 October to 12 November she was engaged in laying nets at Ulithi, under the direction of Cmdr. T. J. Butler, USNR, (TUSCANA) CTU 33.13.4.

During December 1944, and January 1945, she went to San Francisco for repairs and to pick up a net cargo. Returning she served at Okinawa from 18 April to 27 May with Cmdr. Hillsinger designated as CTU 52.8.3. Aided by the TUSCANA (AKN 3), ALOE (AN 6), CHINQUAPIN (AN 17), Lt. C. T. Hammons, USNR, MAHOGANY (AN 23), and WINTERBERRY (AN 56), she laid the nets at Nakagusuku Wan, later named Buckner Bay. On 14 May Lt. Cmdr. T. L. Ingham, USNR, as CTU 52.8.4, assumed the duties of installing these nets and added the SNOWBELL (AN 52), SPICEWOOD (AN 53), and the ABELE (AN 58).

While at anchor at Kerama Rhetto, on 27 April, the SAGITTARIUS was taken under fire by an enemy shore battery and was forced to shift berth. The next day she shot down a bushido boy, expending 11 rounds of 40mm and 31 rounds of 20mm. On



27 May she took a bushido boy under fire and, although no hits were observed, he crashed close aboard.

Returning to Pearl for another load of net materials she proceeded to Ulithi and supported Lt. Cmdr. R. L. Collins, USNR, who, as CTU 94.5.9, was laying nets there. During September and October, the SAGITTARIUS was engaged in rolling back the net materials of Ulithi to Saipan.

Returning to San Francisco in November, the SAGITTARIUS was decommissioned on 16 January 1946.

TUSCANA: The TUSCANA (AKN 3) was commanded as follows: Cmdr. T. J. Butler, USNR to 16 December 1944; Lt. Cmdr. J. G. Ames 3rd., USNR to 13 June 1945; Cmdr. C. E. Ide, USNR to 17 September; Cmdr. D. H. Morse, USNR, to 19 November 1945; then Lt. Cmdr. G. B. Waugh, USNR.

During October and November 1944, was engaged in laying nets at Ulithi, with her Commanding Officer, Cmdr. Butler, as CTU 33.13.4. Staging for Okinawa from Ulithi, she arrived at the former on 18 April 1945, and departed on 6 June. While at Okinawa, she aided the SAGITTARIUS lay the nets at Nakagusku Wan.

After hostilities ceased, the TUSCANA was used to rush forward a cargo of sweep gear needed for the clearance of Japanese waters, arriving at Okinawa on 14 October 1945. She unloaded some cargo there and went to Sasebo for further unloading. At Sasebo and Okinawa, she loaded with minesweeping gear, of these types which were in excess of needs and sailed from Okinawa for the East Coast on 23 November. She was decommissioned shortly after the first of the year, 1946.

KEOKUK: The KEOKUK (AKN 4), Captain L. Brennan, USNR, to 30 April 1944, Lt. Cmdr. J. L. McLean, USNR to 15 July 1944, then Cmdr. R. P. Lewis, USNR, the ex-car ferry and ex-CM 8, transitted the Canal on 1 December 1943. She laid or assisted in laying nets as follows: Majuro, 15-29 February 1944; Kwajalein, South Pass, 12-31 March; Eniwetok, Wide Passage 5-11 April; Saipan, Tanapag Harbor, 28 June; Eniwetok, Wide Passage, 6-17 July; Palaus, Kossol Passage, 17 September to 13 October 1944; Iwo Jima, 20-26 February, 1945; Kerama Rhetto, Okinawa, 27 March to 4 April; and, Ulithi, 11-13 July, 1945. In addition, she made three trips to San Francisco in order to pick up net cargo. On 5 December 1945, the KEOKUK was decommissioned at Kaiser Yard #2, Richmond, California.

ZEBRA: An ex-Liberty Ship, the USS IX-107, grounded in the South Pacific and was badly damaged. With Lt. Cmdr. R. D. Abernethy, USNR, as commanding officer she was commissioned the USS ZEBRA (AKN 5) on 27 February 1944 and sent to Espiritu Santo for repairs and was ready for sea on 8 June. On 12 July 1945, Lt. Cmdr. W. G. Holly, USNR relieved command and kept it until the ZEBRA was decommissioned at Norfolk on 21 January 1946.

Generally, she was used as a cargo vessel but laid nets, or assisted in their laying as follows: Ulithi, October-November, 1944; Peleliu, November, 1944; and, Iwo Jima, March 1945.

#### 19. THE DESTROYER MINELAYERS (DM).

For some time after the commencement of hostilities, the only minelayers in the Pacific were the eight old 1200 ton DM's of Mindiv ONE and TWO, Minron ONE, and they laid minefields over the entire Pacific. Tracks were available at Pearl for the eight Bird Class sweepers and the KINGFISHER (AM 25), Lt. Cmdr. C. B. Schiano, USN, did lay some defensive fields in the Samoan Group, early in 1942, although she had to use jury tracks as the war caught her with hers at Pearl. During the winter of 1942/43 when the four 220' AM's of Mindiv THREE reported, they were available and equipped with tracks, but the vessels were too slow and too lightly gunned for offensive mining. They were not used for mining and eventually the tracks were landed on the beach.

During the summer of 1944 conversion of twelve 2200 ton destroyers to fast minelayers was commenced, and were formed into Mine Squadron THREE in December. Although they did not lay a service minefield, they proved themselves of inestimable value. During the Iwo Jima and Okinawa Campaigns they were close in fire support ships, communication, fighter director and navigation vessels for the minesweeping units. After the sweeping was completed at Okinawa, they took their places in the picket line where eight out of twelve were damaged, but they took tremendous toll of enemy aircraft. Due to conversions to other types, losses and general debility, Minron ONE was down to only the BREESE (DM 18), Lt. Cmdr. G. W. McKnight, USNR, to 24 July, then Lt. D. J. Pickaart, USNR, and the TRACY (DM 19), Lt. Cmdr. R. E. Carpenter, USNR, by the time of the Okinawa Campaign, where the former was the flagship for the Mine Investigation and Disposal Unit, Cmdr. D. N. Clay, USN, and the latter was a close in fire support vessel. In the open sea sweep efforts, before and after hostilities ceased, both vessels and those that were left of Minron THREE planted MK VI mine case buoys, to mark areas swept, which were sometimes one hundred miles from the nearest land. Additionally, vessels of Minron THREE served as fighter-director and navigation vessels, as well as flagships for the Task Group Commanders of these sweep efforts. Still later, vessels of Minron THREE were the flagships for the Task Group Commanders in the various ports of Japan. Their only disadvantage was that they were short legged as compared to the AM's, needing fuel about every five days of operation, whereas the AM's were good for about twelve; a disadvantage which has to be accepted with a vessel of such characteristics.

In far flung operations there probably never would be enough of destroyer types, as evidenced by Lord Nelson's plea for frigates. The temptation to divert such vessels as



the 2200 DM's to other duties would be great, but they are of such great importance to mincraft engaged in operations similar to the Minecraft Campaign of the Far East that the temptation should be resisted.

The DM's were organized as follows:

#### MINE SQUADRON ONE

##### Mine Division ONE

TRACY (DM 19), decommissioned at New York, 16 January 1946.  
PREBLE (DM 20), converted to AG 99.  
SICARD (DM 21), converted to AG 100.  
PRUITT (DM 22), converted to AG 101.

##### Mine Division TWO

GAMBLE (DM 15), badly damaged at Iwo Jima, decommissioned at Guam, 1 June 1945.  
RAMSAY (DM 16), converted to AG 98.  
MONTGOMERY (DM 17), mined and sunk, Ngulu Lagoon, South Pacific, 17 October 1944.  
BREESE (DM 18), decommissioned at New York, 15 January 1946.

#### MINE SQUADRON THREE

##### Mine Division SEVEN

ROBERT M. SMITH (DM 23), damaged at Okinawa, retired to rear for repairs.  
THOMAS E. FRASER (DM 24).  
SHANNON (DM 25).  
HENRY F. BAUER (DM 26), damaged at Okinawa, retired to rear for repairs.

##### Mine Division EIGHT

ADAMS (DM 27), damaged at Okinawa, retired to rear for repairs.  
TOLMAN (DM 28), shaft misaligned by grounding at Okinawa, retired to rear for repairs.  
HENRY A. WILEY (DM 29).  
SHEA (DM 30), damaged at Okinawa, retired to rear for repairs.

##### Mine Division NINE

J. WILLIAM DITTER (DM 31), severely damaged at Okinawa, scrapped at New York, 10 Nov 1945.  
LINDSEY (DM 32), damaged at Okinawa, retired to rear for repairs.  
GWINN (DM 33), (FF), damaged at Okinawa, remained on station, repaired locally.  
AARON WARD (DM 34), severely damaged at Okinawa, scrapped at New York, 28 September 1945.

## 20. THE HEAVY MINELAYERS (CM).

The CM's 1, 2 and 3 had been conversions for World War 1, to lay the North Sea Barrage, and were long gone prior to the attack on Pearl Harbor. The OGLALA (CM 4), also a World War 1 conversion from a merchant type, had kept mining somewhat alive between the wars, was sunk during the attack, but later salvaged and re-commissioned as a repair vessel. Keels were laid for the TERROR (CM 5), CATSKILL (CM 6) and CZARK (CM 7) as the first, and last to date, U.S. heavy minelayers to be constructed as such from the keels up. Of these however, the CM 6 was not completed as a CM, but as the AP-106 and then converted to the LSV-1; while the CM-7 was completed as the AP-107 and then converted to the LSV-2. CM 8 to 12, incl., were merchant type conversions. Thus, there were six CM's that saw service as such during the war, not counting the OGLALA, as follows:

TERROR (CM 5), Commander W.H.Fitch, USN, until May, 1944, Commander H.W.Blakeslee, USN, until June, 1945, then Commander R.T. Spofford, USN; commissioned 15 July, 1942.

KECKUK (CM 8), Lt.Cmdr. L.Drennan, USNR, until 30 April, 1944, Lt.Cdr. J.L.McLean, USNR, until 15 July, 1944, then Cmdr. R.P.Lewis, USNR; commissioned on 28 February, 1942, as the AN-5, the designation which was the forerunner of AKN, but was shortly designated the CM-8. On 31 October, 1943, her designation changed, this time to AKN-4, and she went to the Pacific. Her activities there are outlined in Chapter 18, Book 1.

MONADNOCK (CM 9), Commander F.O.Goldsmith, USN, until 26 February, 1944, Lt. L.F.Marshall, USNR, to 7 March, 1944, Lt. Cmdr. K.D. Gallinger, USNR, to 11 September, 1944, Lt.Cmdr. J.E. Cole, USNR, to 1 September, 1945, Lt. W.H.East, USNR, to 19 November, 1945, Lt. B.B.Babler, USNR, to 16 February, 1946, then Lt. Cmdr. F.M.Linderman, USN; commissioned 2 December, 1941. During the summer of 1945, her designation was changed to that of a Minecraft Tender (ACM 10).

MIANTONOMAH (CM 10), Lt. Cmdr. R.D.Edwards, USN, until 9 September, 1943, then Commander A.E.Rowe, USNR; commissioned 13 November, 1941. She was mined and sunk off Le Havre, France, on 25 September, 1944.

SALEM (CM 11), Lt. Cmdr. H.G.Williams USN, until 25 November, 1943, then Lt. Cmdr. G.C.King, USNR; commissioned 9 August, 1942. On 15 August, 1945, her name was changed to the SHAWMUT (CM 11).

WEEHAWKEN (CM 12), Lt.Cmdr. R.E.Mills, USNR, until 8 February 1944, then Lt.Cmdr. W.P.Wrenn jr., USNR; commissioned 30 September, 1942. She was lost on the reefs of Okinawa during the typhoon of 9 October, 1945

While in the Atlantic, the TERROR was the nominal flagship of Comservron FIVE and was directly under the control of the latter, until she was detached on 30 September, 1943, for



duty with ComservPac. The remaining five CM's were formed into Mine Division FIFTY, during the summer of 1942, with Cmdr. G. F. Mentz, USN, as Comindiv FIFTY until he became Conservron FIVE on 3 December 1943, then Commander H. G. Williams, USN, until the Division was dissolved on 17 April 1944, and Commander Williams became Cominron THIRTEEN. While in the Atlantic, the CM's operated somewhat as a unit and will be so treated here. After they reached the Pacific, they operated independently of each other, so the outline of their activities there will be given individually.

With the Officer in Tactical Command (O.T.C.) being Comservron FIVE, Captain C. C. Miller, USN, the KEOKUK, MIANTONOMAH and MONADNOCK laid the Chesapeake Bay field during January 1942, the Trinidad fields during April 1942, the Key West fields during April and May 1942 and the Hatteras field during May 1942.

All six CM's were used for various legs of the Fedala-Casablanca fields laid during November and December 1942. Leaving Africa on 17 November 1942, the TERROR, MONADNOCK and MIANTONOMAH returned to the U. S. The remaining three CM's followed in February 1943, with the KEOKUK reporting to CNO for duty in connection with net laying for a period of almost three months.

During the major portion of the first half of 1943 the CM's were in and out of various dockyards, for alterations and repairs. On 13 June 1943 the WLEHAWKEN, KEOKUK and SALEM returned to the Mediterranean where, with Cmdr. Mentz as O.T.C. they laid the Gela, Sicily, field during July, returning to the U. S. on 26 October 1943.

The MONADNOCK and MIANTONOMAH laid further fields off Trinidad during June 1943.

On 4 May 1944, the MIANTONOMAH, the last CM to remain in the Atlantic, left the U. S. to return to Europe for duty with Commander Twelfth Fleet and was mined and sunk off Le Havre, on 25 September 1944.

Perhaps a sweeper of mines should not start a violent argument over mining, a subject in which he is not an expert, however here we go.

There is no doubt as to the efficacy of offensive mining, but there is doubt as to the value of defensive fields by a predominant sea-power. In our own case, we lost many vessels in our own fields, due either to carelessness or to some one not getting the word. As far as is known, no enemy suffered casualties in our defensive fields except at Ulithi, as distinguished from their heavy losses in our offensive fields. The movements of enemy submarines were no doubt limited to some extent by their knowledge that we had mined certain areas, but just how great the deterrent value was will probably

never be known. As we might again be forced on the defensive in certain areas, as we were during the past war, we should be prepared to lay such fields, but only as a last resort.

A CM cannot lay an offensive field without almost certainly being sunk by enemy action. Although the CM's did carry out training activities for minemen in addition to the duties outlined above, we have seen that there were long periods of time when the CM's were eating their heads off and giving little in return. It was not until they reached the Pacific that they were gainfully employed on a full time basis, and then not as CM's, as a rule.

The advantage of the CM over the DM is that the former can carry many more mines, and can service them better. Otherwise, the DM has all the advantage as a minelayer, as well as being able to perform other valuable duties between mining missions.

It is believed, that a fair compromise could be worked out and still keep surface mining alive, although moored mine fields may be rendered well nigh obsolete in the near future by super-sonic gear. With one CM in the Atlantic and one in the Pacific for experimental and training purposes, they could be fitted with portable tracks. During periods of minelaying, they could be used as CM's. When not needed for such purposes, they could better be used as Minecraft Tenders (ACM), the service for which they were primarily used in the Pacific. If we learned nothing else in the Pacific, we learned the value of versatile vessels, the necessity for the support of small craft, the necessity for keeping your support afloat and mobile, rather than attempt to support vessels in Japan from Mechanicsburg, Penna. As Admiral Sharp said: "War is 99% logistics and but 1% fighting."

**TERROR:** The TERROR transitted the Canal on 8 October 1943, arriving at Pearl on 25 October and discharged her cargo.

Between November 1943, and early October 1944, while she did not physically lay the minefields, the TERROR transported Captain Robley W. Clark, USN, Cominron ONE, with his Mine Details from NMD, West Loch, the mines and gear necessary for four mining missions. The four defensive fields laid were: Funafuti, Ellice Islands; Diane Island, Gilbert Group; Kwajalein; and Ulithi. In addition, she carried forward the aircraft laid mines for the Palau mining strike, made by planes of the LEXINGTON, HORNET and BUNKER HILL, March 30-31 1944.

Between mining missions, the TERROR made several trips about the Pacific with cargoes of ammunition and mines, including one trip to San Francisco in order to pick up ammunition. Also, she carried M/S gear to Ulithi, the Marianas and Manus. On 25 November 1944, she entered Navy Yard Pearl



for alterations to accommodate the Admiral and his Staff, and for repairs. On 6 January 1945, Admiral Sharp hoisted his flag on the TERROR and her later activities have been described elsewhere.

MONADNOCK: The MONADNOCK arrived at the Canal Zone on 18 Dec 1943, and reported to CincPac for duty. She arrived at Pearl Harbor and reported to Comservron SIX on 7 January 1944, and in Samoa on 22 January reported to Commander Third Fleet. Assisted by the GAMBLE (DM 15), Lt. Cmdr. W. W. Armstrong, USN and SICARD (DM 21), Lt. Cmdr. J. V. Noel, USNR, she laid a minefield off Espiritu Santo on 10 February and one off Efate on 14 February 1944. These were her last mining ventures, but not the end of her usefulness.

From 26 April to 23 June and from 26 July to 12 October, 1944 she acted as service support vessel for M/S and A/S vessels, with her Commanding Officer, Lt. Cmdr. K. D. Gallinger, USNR, being the Guadalcanal Area Representative for Minecraft Type Commander, Service Force, Third Fleet.

From 31 December 1944 to 28 February, 1945, the MONADNOCK, Lt. Cmdr. J. E. Cole, USNR, with Lt. Fred Chambers, USNR, as minesweep gear and logistics and repair officer, supported M/S and other small vessels in the Philippine Campaign. This was the first time that a floating minesweep depot was used in the Pacific and only by her services were many of these vessels kept operating.

From 10 April to 26 May 1945, she acted as service support vessel for minecraft in the Okinawa Campaign, then returning to the West Coast for a major overhaul and for alterations, where her designation was changed to that of Minecraft Tender ACM 10.

The MONADNOCK (ACM 10) returned to Buckner Bay, Okinawa, on 17 October 1945, and then went to Sasebo, Kyushu, Japan, where she served as flagship of the local minecraft representative of CominPac.

The lack of fresh water was the chief handicap of the minesweepers. To help solve this problem, increased evaporator capacity was approved and installed in the MONADNOCK during her 1945 overhaul, but these steps were nullified as the steam supply line was not enlarged to care for the new capacity. As if to say that a ship could have guns but not ammunition, later attempts to enlarge the steam line were met with refusal on the absurd grounds that it was an unauthorized alteration, and the minesweepers continued without fresh water.

SALEM: The SALEM transitted the Canal on 20 May 1944 and reported to CincPac for duty, arriving at Pearl on 14 June. At first she was used by ComservPac as an ammunition vessel in the Marshall-Gilbert and Marianas Areas. On 4 October 1944, while

at anchor off Tinian, swells set her on the bottom, damaging propellor and rudder. Returned to Pearl under tow, she was converted into a temporary net layer (AKN).

Sailing from Pearl the first of March 1945, she aided in repairs to mincraft at Ulithi and Leyte, who were staging for Okinawa. Arriving at Kerama Rhetto, Okinawa Gunto, on 26 March, her Commanding Officer, Cmdr. King, was the task Group Commander for laying nets and the vessel laid her share of the nets. During June and July she was engaged in repairing the nets at Eniwetok and, on 15 August 1945, her name was changed to the USS SHAWMUT (CM 11), and Lt. Cmdr. D. C. Wrightington, USNR, relieved the command.

WEEHAWKEN: The WEEHAWKEN transitted the canal on 20 May 1944 arrived at Pearl 14 June and unloaded her cargo of mines and other items. She went to Alameda, Calif., for alterations and arrived 4 July leaving 8 August, 1944, with a cargo of ammunition for Espiritu Santos and for the Solomons, completing the trip at Pearl on 22 September.

During the Okinawa Campaign, the TERROR carried and issued mostly size one Oropesa gear for AM's. After she was hit, some of this gear was transferred to LST 804, but most of it was dumped in a pile on the beach and later salvaged. The WEEHAWKEN concentrated on size four Oropesa gear for YMS's under the supervision of Lt. John S. Williams, USNR, a member of the Staff who later supervised the conversion and outfitting of the LST 494 as a floating minesweep depot and went to Sasebo in her, as minesweep gear maintenance officer. After the end of April, YMS's were not used in moored fields to any great extent and the losses of such gear were slight. As the M/S gear of the WEEHAWKEN became depleted it was not replaced, and she became more and more a Mk VI mine case buoy assembly and issue vessel, as the need for buoys increased. From her arrival on 10 April until her loss on the reefs of Okinawa during the typhoon of 9 October 1945, the WEEHAWKEN rendered valuable services as a YMS service support vessel in other ways, issuing fresh water, general stores, ship's service stores and food.

Both Admiral Sharp and Admiral Struble were greatly concerned about the possible effects of a typhoon on the WEEHAWKEN. Being a converted railroad car ferry, she was top heavy and not considered seaworthy in more than a moderate sea, but because she had the only available mine tracks in the Area, military necessity kept her at Okinawa. Had the typhoon held off for two more weeks, it would have found her in Sasebo. Pile moorings had been driven for her at Unten Ko, but she could not enter except in a flat calm and could not be kept there, as DM's could not be risked in that channel and mines could not be transferred to them without intermediate carriers, which were not usually available. She was not considered safe at sea with a typhoon at large and as a compromise, a typhoon mooring was



laid for her in the most protected spot in Buckner Bay. During the typhoon of 15 September she parted her anchor chain, which was secured to a buoy, but she was not damaged. Taking steps to prevent a recurrence of this, during the typhoon of 9 October the buoy carried away and the WEEHAWKEN was driven on the reef, without casualty to personnel. Her cargo of buoys were salvaged and later used.

## 21. THE MINECRAFT TENDERS (ACM).

During the war, ten minecraft tenders were commissioned as follows:

- ACM 1 USS CHIMO, Lt. J. W. Gross, USNR, 7 April 1944 FF for Cominron 108.
- ACM 2 USS PLANTER, Lt. T. T. Scudder jr., USNR 4 April 1944, FF for Cominron 105.
- ACM 3 USS BARRICADE, Lt. F. J. Priddle, USNR, 7 April 1944, FF for Cominron 103.
- ACM 4 USS BUTTRESS, Lt. B. H. Beatty jr., USNR, 13 March 1944.
- ACM 5 USS BARBICAN, Lt. Alex. Anderson jr., USNR, March 1945, FF for Cominron 101.
- ACM 6 USS BASTION, Lt. E. D. Fatkin, USNR, 9 April 1945, FF for Cominron 107.
- ACM 7 USS OBSTRUCTOR, Lt. Sammie Smith, USNR, 1 April 1945, FF for Cominron 106.
- ACM 8 USS PICKETT, Lt. R. C. Wilson jr., USNR 6 March 1945, FF for Cominron 104.
- ACM 9 USS TRAPPER, Lt. E. E. McCarthy, USNR 15 March 1945, FF for Cominron 102.
- ACM 10 USS MONADNOCK, whose major service was performed as CM 9 and whose activities are outlined under chapter on HEAVY MINELAYERS, Chapter 20, Book 1.

The BUTTRESS (ACM 4) was converted from a 180' PCE for use as a mine recovery and experimental vessel, was so used in the Hawaiian Area and is still retained for that purpose by CominPac.

For operations in Europe, three Army Coastal Mine Planters were taken over and converted to the ACM's 1, 2 and 3. These left the United States during May 1944, and arrived back during 1945; the PLANTER on 17 January, the CHIMO on 30 March,

and the BARRICADE on 23 June. The CHIMO serviced the American and British minesweepers of "A" Squadron, Cmdr. H. Plander, USN off the Coast of Normandy for the invasion and then supported the American YMS's and British MMS's of "Y" Squadron, Cmdr. G. W. Allen, USN, off the French Channel Coast until March 1945. The PLANTER and the BARRICADE serviced minesweepers during the Italian Campaign and for the campaign for Southern France. In December 1944, CominPac was informed that further conversions of this type could be made if desired, and this offer was enthusiastically accepted. As a result, five more Army Coastal Mine Planters were taken over and converted to ACM's 5 to 9, incl. Great delays were met with however, mainly caused by the nonavailability of diesel spares for the YMS's and the difficulty in finding suitable squadron commanders. Due to these delays, the full value of these splendid vessels was not realized.

Leaving the ACM's 4 and 10 out of it for the purpose of this discussion, the ACM admirably filled a need that was apparent from the first day that a YMS broke away from a regularly established and supported Section Base. They had quarters available for a squadron commander, with a modest staff, a doctor and a dentist. The powered twin reels were ideal for repairing magnetic cables. Storeroom space was available for ship's service stores and diesel spares, although it would have been impossible to have placed therein all such that the allowance lists called for and still have stocked Oropesa gear. It is believed that such an ACM should carry no Oropesa replacement gear, but should concentrate on magnetic cable repairs, engineering spares and stores, and ship's service stores. The Oropesa gear, being bulky and heavy, should be carried in other types, as discussed under LSTares, Chapter 22, Book 1. For lack of other types, these vessels had been used in Europe to plant dan buoys, but such duties are considered a tactical error. The vessels have no compartmentation and would have gone down like a rock, if holed. BuShips drew up plans for conversion of SC's to buoy layers, and at least one for each Fleet should be completed and experimented with, by all means. No type which was used for dan buoy laying was found to be very satisfactory, with a minecraft tender being all together too valuable to be risked in a minefield. Burning black oil themselves, the main drawback of the ACM was that they could not fuel diesel craft.

The CHIMO and PLANTER were decommissioned in May 1946, and the other six ex-Army Mine Planters have been turned over to the Coast Guard. It is considered most unfortunate that two were not retained, one for use in the Atlantic and one for the Pacific. This would indicate that we did not learn the bitter lesson that four years of trying to support hundreds of small craft on a shoe-string should have taught.



22. CARGO CARRIERS; REPAIR AND SUPPORT VESSELS  
(AE; ARG; AG; LSM; LCT; LST; APD).

SANGAY: The SANGAY (AE 10), Captain W. D. Ryan, USNR arrived at Pearl in June 1943. On 15 August 1944, Lt. Cmdr. H. C. Taylor, USNR, relieved command. Although converted from the diesel driven merchant vessel SS CAPE SABLE, for use as a mine assembly vessel, at the request of Comservron SIX, ComservPac used her as an ammunition ship until 4 February 1945, when she was turned over to CominPac. On 17 November 1945, Lt. F. M. Criswell, USN, relieved the command.

From 27 June to 12 August 1945, she stood by at Eniwetok with a cargo of mines for possible use in the approaches to Japan. On 12 August she departed for Pearl, it being decided that the situation would not call for a surface mining venture, and the mines were jettisoned enroute. At Pearl she loaded with minesweep gear, Mk VI mine case buoys, medical stores, food, winter clothing, and other stores, and sailed for Okinawa, arriving 11 October and at Sasebo on 22 October. At Sasebo she served as a depot for mine case buoys and other gear until January 1946, when she rolled back from Sasebo and Okinawa a cargo of excess minesweep gear to the East Coast.

At no time did CominPac have vessels which did other than double in brass, and the SANGAY was no exception. The more versatile the vessel the better, and it was the lack of that characteristic that made her conversion a flat failure. Converted with the idea that she would only be used to assemble and issue mines, she was naturally used as a cargo carrier. Such carriers were too valuable to be kept idle between mining missions. Without flooding or sprinkler systems, she could only be used as an ammunition vessel under urgent war necessity. With little doubt the worst fitted cargo carrier in the Pacific, she must have been a painful ammunition vessel. Two heavy capacity booms had been replaced with lighter ones, and heavy booms were always at a great premium. Her hatches had been so reduced in size that only the smaller items could be loaded, and even they could only be handled with great difficulty. What hatches there were did not plumb the centers of the holds, and the upper and lower hatches of at least one hold did not plumb each other. Her running gear wore out rapidly from chaffing on the sides of the hatches and cargo had to be man-handled. Truly, a pain in the neck.

MONA ISLAND: The MONA ISLAND (ARG 9), Cmdr. K. F. Horne, USN until August 1945, then Cmdr. D. T. Baskett, USNR, was commissioned as a diesel engine repair vessel on 17 October 1944, at the Bethlehem Steel Co., Baltimore, Md. On 24 January 1945, she arrived at Pearl, reported to ComservPac and was routed to Ulithi arriving 18 February. There, she did emergency work for Comservpac TEN until reported for duty to CominPac on 3 March.

At Okinawa from 10 April until the parting of her typhoon mooring and her grounding in Buckner Bay, during the typhoon of 9 October, the MONA ISLAND was used as a repair vessel for the diesel vessels of MINPAC, interrupted by typhoons and numerous air raids. Had it been possible to assign the five such diesel tenders requested by COMINPAC instead of the one, operations would have been on a really sound basis.

After the grounding, in which her propeller and rudder were rendered inoperative, general stores and the remnants of the diesel spares were transferred to the CEBU (ARG 6), Cmdr. D.B. Candler, USN, and she relieved the MONA ISLAND, which left under tow for Guam, on 19 October 1945. While not as well equipped for that duty, the CEBU did excellent work within her capabilities, but demobilization soon affected the type and quantity of work accomplished. Services to MINPAC by the MONA ISLAND practically ceased on 9 October, but she did not actually pass from the control COMINPAC until 25 December, 1945.

At the beginning, the green crew of the MONA ISLAND used over fifty gallons of fresh water per man per day, whereas a YMS was lucky to obtain eight. Towards the end, the MONA ISLAND was able to control the situation and furnished considerable water to smaller vessels.

PATOKA: The PATOKA (AG 125), Cmdr. E.W. Kiefer, USN, arrived at Pearl on 16 July, 1945, from the East Coast, and reported to ComAdCominPac for temporary duty. At Pearl she was outfitted as a mincraft tender and loaded with such limited cargo as her one hold would allow. She arrived at Buckner Bay on 5 September, where a certain amount of cargo was discharged and where her boom was used to unload the TERROR.

The PATOKA was sent to Wakayama, Japan, arriving 23 September, to aid in supporting the sweep effort of CTG 52.6, Cominron THREE, Captain A.M. Townsend, USN, taken over later by Cominron TWENTY-ONE, Captain T. F. Donahue, USN, where she remained until after the first of the year.

While the PATOKA made the operation possible and rendered valuable services, within her capabilities as a tender, and oiler, supplying diesel oil, some fresh water, minor repairs and limited stores, she was a makeshift and her severe limitations left much to be desired.

LSMikes: After hostilities ceased, COMINPAC obtained an average of eleven LSM's from ComAdComPhibsPac, although there was some exchange of bow numbers from time to time. These vessels were of the greatest utility.

One was converted for towing the Loch Ness around Nagoya Harbor. Others were used to bring up sweep gear from Guam, and others to unload cargo from large carriers. One was thoroughly scrubbed and painted, and ferried dry stores out of Sasebo to nearby sweep groups. Freight, selected cargoes of sweep gear and other supplies which might be used were loaded and sent to stand by in the various sweep areas.



While all the gear sent was naturally not used, it was there as a stock to be drawn upon. They were fast vessels and handling of bulky cargo was easy provided power lifts were available, but stowage was not under cover. As these vessels were sent back to the Coast, they were loaded with excess sweep gear for roll-back.

LCTares: As hostilities ceased, three LCTarea were obtained in order to convert them to Loch Ness handling and recovery vessels. Conversions were delayed due to their poor material condition and to the large volume of work being accomplished by the MONA ISLAND, in keeping as many sweepers on the line as possible. One conversion was completed just in time for the typhoon of 15 September and the work was lost, as the LCT involved was driven ashore and was not salvagable, or at least she was not when the second typhoon was through with her. A replacement was obtained but conversion was even slower, this time. There never being enough repair facilities for minecraft, typhoon damage aggravated the eternally serious problem. It was just a case of plugging along with the most essential work, choosing those vessels and those items which would pay off best in results. The MONA ISLAND finally finished the duplicate conversion and the LCT 791 was towed to Nagoya in a hurry, before a typhoon could catch her. While she did not pass through a typhoon, it was an extremely rough trip and she had either her nose straight up or down most of the way. At Nagoya, the LCT 791 was actually used as a Loch Ness handling vessel. The CEBU (ARG 6) converted the other two LCT's but the conversion features were not used.

As a by-product, the LCT's were of great and essential service in handling cargo. One remained at Buckner Bay and one was towed to Wakayama for that purpose.

LSTares: During the Okinawa Campaign proper, LST's 167, 494, 617 and 804 were obtained on a temporary basis. One was used as the support vesse at Unten Ko, for YMS's and to house and subsist Sea Bees assigned for the laying of moorings, driving piles and erection of Quonset huts. During December, the LST 617 stripped the four YMS's at Unten Ko, which had been condemned, and rolled back the salvaged gear to Pearl. Lacking other facilities ashore or afloat, all were generally used to supply limited amounts of water and diesel oil, to receive minesweep and other gear from the damaged TERRCR and to issue as needed, as a minecraft postoffice, for freight stowage and handling, as floating hotels for transient personnel, for covered stowage, for perishables, to receive and protect the gear salvaged from grounded minecraft, and the like. Need for local handling of minesweep decreased as the facilities of the shore depot increased and as the minesweeping efforts moved to move remote areas, with sweepers using other ports as bases. Some such facilities as these LST's provided were essential to operations.



Although the post hostilities sweeping problem was known only in general terms at the time of the surrender, Japan appeared to present four logical sweep areas, which would probably mean four large sweep groups working simultaneously, all needing support. Winter was coming on, which meant winter clothing was necessary. Ship's service stores had never been available in the field to vessels without supply officers, which none of the sweepers had, except through the charity of larger vessels, and then at their retail prices. Dry and fresh provisions were always critical during those periods when minecraft were in port. Diesel oil all too often was contaminated with water. The fresh water problem was never solved and acid and acid cleaning sets, for the Kleinsmith distillers, were rarely available. The sweep gear losses were extremely heavy in active fields and the replacement gear was only that which accompanied the sweepers. All this meant a great support effort, which experience had taught was not available in normal channels, nor did COMINPAC have suitable shipping available. Therefore, extending the idea as developed with the MONADNOCK, TERROR and WEEHAWKEN, COMINPAC requested ComAdComPhibsPac that he make four LST's available for conversion to minecraft support vessels, of which LST 494 was to be one, which he did.

LST's 494, 781, 813, 917 were assigned, of which the LST 494 was converted and loaded in Okinawa and the other three at Guam. None of the four actually took the field until after the middle of October. Due to the rapid demobilization at the shore base, the three at Guam sat untouched for about three weeks. When they finally were put out, their conversions consisted of little more than the installation of reefer boxes, and wire mesh cages in which to guard stores. They were somewhat unbalanced on the side of being provision ships rather than primarily minesweep gear vessels. While not the ultimate, the LST 494 was much the better as Commodore T.J. Keliher jr., USN, Okinawa Representative of Comservron TEN, assigned a repair vessel solely to that task, which was accomplished under the general supervision of COMINPAC and directly by Lt. John S. Williams, USNR, the member of the Staff who obtained his logistics experience in the WEEHAWKEN. With some forebodings, necessity forced the risking of the LST 494 in the channel of Unten Ko in order to re-supply the vessels there with dry stores and fresh provisions. Finally, she left for Sasebo on 25 October, 1945, with Lt. Williams as her Minesweep Gear Logistics and Repair Officer. Sasebo soon became a secondary center for sweep gear and the 494 gradually landed the majority of such gear on the dock, and became more and more a retailer of other types of stores. She was retained in the one port and the other three became the travelling members of the logistics team.

Amongst other items, the LST 494 had installed: two hand operated, steel, magnetic cable handling reels salvaged from the YMS 92 and YMS 103, both of which had been mined during the



Okinawa assault sweeping, but these reels were not used as the power operated dual reels of the ACM's were better; low oil suctions; two gasoline driven distillers; four reefer boxes, carrying about 45 tons of frozen meat, operated by one diesel driven generator and with one gasoline driven one as a stand-by; acid, but no acid cleaning set; cages for ship's service stores, dry stores, winter clothing and ice cream machine. The fire hazard and supply problem for the gasoline generators were serious problems, but the generators were manufactured for shore establishments and were all that were available.

It had been planned that specialized gear was to be forwarded by fast voyages, by LSM, from Okinawa, Sasebo and Guam, as replacement stock for the LST's. As it actually worked out, the LST's could not hold all of the replacement gear and the LSM's remained on the new stations for some time. A small amount of winter clothing was stocked for the benefit of those vessels which had some how missed out along the line. Ship's service stores, dry stores and fresh provisions were to be obtained in wholesale lots by the LST's and retailed to the small vessels and, also, to support out-of-the-way operations with these items, such as the Formosa Operation. Some provision ships refused to allow the LST's alongside, which meant handling thawing meat in small boats in small lots and resultant contamination by polluted harbor waters, which spread dysentery to some vessels. This shortsighted attitude, taken because of the fear of a dent or two in the carrier's plating, partially defeated the basic idea with a great increase of labor by all hands, including those of the carrier. Low suctions, to eliminate some of the water in the oil, and extra water distilling capacity were only obtained in the LST 494. The four acid cleaning sets ordered for delivery by air transport were cancelled when, upon reaching San Francisco at a late date, they were found too large to load in a plane, were shore based installations weighing over one ton and driven by 440 volt, 3 phase, motors. What was needed was a set that two men could run away with, driven by a one horsepower universal motor, 120 volts. Only the LST 494 had an elevator, the other three having ramps which made gear handling difficult. The three LST's converted at Guam had the reefer boxes installed on the tank deck, instead of on the topside as in the case of the 494, which further encroached on stowage space for minesweep gear.

In spite of all the delays in outfitting and their shortcomings, the four support LST's were the most valuable vessels of CominPac. This experience should not be lost and minecraft support vessels should be developed in a leisurely and methodical fashion. They should be about three or four thousand tons, so as not to carry all eggs in one basket as was done habitually in the Pacific, although we happened to get away with it. Additionally desirable characteristics would be: ease of gear handling; bins for the smaller items; in at least some, power driven reels for handling magnetic cables

with attendant repair facilities; and, quick availability of gear requiring a minimum of lashings, such as parallel rails to hold reels of wire and accordion like bins for the bulkier items. It is suggested that stowage be worked out using scale models in those percentages which experience has shown that gear was lost. For instance, probably twenty otter bridles were lost to each depressor bridle. It would obviously be a mistake to carry as many depressor bridles as otter bridles.

APD's: There were four APD's, troop transports converted from Destroyer Escorts, assigned for post hostilities operations and their activities are outlined in Book 11, under heading: "Okinawa Minecraft Group."

23. THE MINE DISPOSAL VESSELS; GUNBOATS (PGM); PATROL CRAFT (PC); and, LANDING CRAFT INFANTRY (LCI or LCI(R)).

The PGM's were developed to counter the Japanese barge traffic, such as was encountered in the Solomons, and consisted of fast, rather heavily gunned, steel PC hulls. The need for which they were designed having passed, ComservPac offered them to CominPac for the Okinawa Campaign, which offer was gladly accepted. Sixteen PGM's, the 9-11 incl., the 16-21, the 23-25, and the 29-32, served with minecraft during the Campaign, and many remained on for post hostilities sweeping. Of these sixteen, the PGM 17 grounded and was lost while surveying Unten Ko, the PGM 18 was mined and sunk in Nakagusuku Wan (Buckner Bay), and two were lost on the reefs of Buckner Bay during the typhoon of 9 October 1945. Additionally, five PC's were assigned for only the assault phase, the 584, 800, 1128, 1179 and 1598. The PC's were similar to the PGM's but were not as heavily gunned.

For the assault sweep, in most cases each of the three Sweep Units of the Sweep Group had its own DM. At the least, each Sweep Group had two DM's. In addition, most of the Sweep Units had a PGM or SC as a mine disposal vessel, with secondary duties as fire support and as dan buoy laying and recovery vessels.

The end of hostilities found a large sweep task force at sea working an Area "Skagway". Its mine disposal and dan buoy vessels were mostly YMS's, which were immediately pulled out and sent to Tokyo Bay, necessitating pulling AM's out of the sweep line to perform their duties and, thus, weakening the sweep effort. To prevent such dilution, CominPac requested ComAdComPhibsPac to assign 48 LCI's for use as mine disposal vessels, which was done. However, they did not report as early as was desired, so the 8 that were to accompany the AM group to the northern end of Honshu did not go. The LCI's were fitted out with buoys and MN (minesweep network) radios and, if they were rocket ships (LCI(R)'s), their five tons of rockets were landed or jettisoned. These preparations complicated matters when bow number assignment of vessels was change as sometimes happened.



Although they had their troubles and plenty of them, the Amphibious Force was in many respects better off than MinPac when it came to keeping ships operating. Largely, the movements of PhibsPac vessels between invasions were limited, so that machinery was not wearing out, except for the auxiliaries. Also, PhibsPac was high bidder for engine spares - no spare parts, no invasion. In addition, PhibsPac had diesel repair vessels, converted LST's (ARB), that traveled with their invasion forces. Finally ComPhibsPac had a reserve pool of landing craft types which could be drawn upon; whereas, whatever reserve that CominPac might have had was scattered all over the Pacific, with individual vessels being worn out by various local commands. In spite of the above advantages, the LCI's assigned to CominPac were nearing the ends of their ropes, having been built to be expendable after limited service. While many were not operatable at times and most required much upkeep, the original estimate of 48 LCI's had allowed for 25% to be under upkeep at all times. This 25%, plus the 8 that did not go to northern Honshu, gave the margin needed and for only one or two short periods were the sweep groups ever short of mine disposal vessels, during the post hostilities sweeping of moored fields. The influence fields needed no such vessels, and undegaussed mine disposal vessels were not used in such areas.

Practically each LCI or PGM on the line was the equivalent of an AM, as it assured that an AM would remain in the sweep group where it belonged. The LCI's and PGM's destroyed thousands of mines and expedited operations greatly. Neither were efficient handlers of dan buoys, having freeboards that were too high and lacking davits, but they did the job anyway - the hard way.

Many of the PGM's arrived at Okinawa with up to seventy percent of their crews never having been to sea before. The attitudes of their officers and men were perfectly splendid and their roles in that Campaign compare favorably with any other group, regardless of which group one picks for comparison. With nothing but inconveniences, they were a group of rugged individuals, yet clannish amongst themselves, supposedly because they had no one else to whom to turn. All of MinPac were proud to have them as part of the organization for a year, and an active year at that.

#### 24. PERSONNEL.

The finest ships and equipment in the world would be useless without personnel to operate them. Except that mine-craft personnel were volunteers for general service in the Navy with their hearts in their work, although, it is true many were "volunteers" in the sense that they were one jump ahead of the Draft Board, no claim is made for any special type of basic raw material. They were the run of the mine

boys from the homes of America: from the farms, the streets, the mines, the factories, the garages, the schools, the colleges, the drug stores. They had the same varied backgrounds, the same strengths and weaknesses that occur in such cross sections of the country; but there were few of the types which populate the Alcatrazes and the Litchfields. There were a few who jumped ship and even deserted prior to their ship leaving Continental Limits, but after leaving there was no liberty problem, as there was no liberty. There were a few other undesirables, some of whom could not be tolerated in the Naval Service. For the 99½% of the personnel who served in minecraft with honor, we are justly proud.

Living on small ships, men were constantly thrown together and had to learn to get along with each other. As compensation for crowding, most became fast friends. Officers were in close contact with their men and other officers, and could quickly sense undesirable conditions. Receiving little outside assistance, the personnel expected little, so they were not disappointed. They were independent, learned to improvise and stood on their own feet, as their forefathers did. Not all was sweetness and light and there was much about the life that was not too attractive, but it would be surprising if 1% of the enlisted men of minecraft have any sympathy towards the current campaign against "caste". If one wishes to start a great movement, one must have a catch-word and "caste" is a beautiful one for that purpose. Above all, minecraft personnel could see that their contributions were essential to victory, or occupation, and that they were not just marking time. But whatever the reason, to use the old term used the Navy long before morale was even thought of, much less overworked, the ship's spirit of those of minecraft was high in spite of grievances, real or imaginary.

Just being out there was bad enough, and there were several things that might have been done to have made life a bit more pleasant, had individuals thought of them. We go this way but once, so we might as well give a thought now and then to the other fellow.

The sore spot in the Pacific lay in the officer's clubs, but not purely because they existed. Had it been a Pacific wide rule that no officer's club could open until adequate recreational facilities had been established for the men, then there would have been no complaints.

Most commands had the rule that each man was limited to two cans of beer, when he visited a recreational area. While true that the average officer has a high sense of responsibility which enables him to hold his liquor, it is felt that a man who has not been ashore for months is entitled to a mild glow if he wants one. Such causes a relaxation that wipes away the effects of a deadly routine. It is believed more sound to cut off the supply entirely to those displaying a lack of



responsibility rather than penalize every individual. Of course, at times, the supply of beer necessitated the two can rule.

Especially when shown below decks, the entire crew could not view the movies in any degree of comfort. Under such conditions, two shows a day would have solved that, on the days when movies were available.

One Reserve Officer stated that his main complaint against the Navy was that it was all so impersonal, no one had any interest in the individual. There is a grain of truth in that, but not so much a lack of interest in individuals as it is the Navy system of impersonal reports. It is very difficult to even find out who was the Commanding Officer of a ship on a certain date, which is a sad blow to the millions of individuals who are convinced that they won the war single handedly. If a man did a good piece of work, of an importance sufficient to be mentioned in a report, then he would feel infinitely better were he mentioned therein, even if no one ever reads said report. Based on the impeachable tradition that the Captain is responsible for everything which occurs regarding his ship, the fictional corollary that the Captain personally accomplishes each and every act is not entirely conducive to the development of initiative.

In the Pacific at least, it was practically impossible to obtain replacement personnel in sufficient quantities to bring ships up to complement. Men would be returned to the Continental Limits for new construction and replacements were only rarely available. This meant that either condition watches were reduced below the safety level, or that the crew had to go into watch and watch. The latter meant 12 hours a day of watches, which meant a 16 hour day, as a certain amount of ship's work was essential. Remember, all this on a seven day week, for months and even years. For Okinawa, replacement personnel were not available at Ulithi and mine-craft were not brought up to complement for the invasion. Nor did personnel arrive at Okinawa for replacement of battle casualties.

Speaking of the return of men for new construction, some Commanding Officers pursued a short sighted policy in that respect. Such Commanding Officers would retain on board their most efficient ratings, regardless of the time they served away from the U. S. and regardless of the opportunity on board for advancement in rating of the more efficient petty officers, returning the least efficient. Usually, the return of a man meant that he was advanced one rating, regardless. Admitting the very human temptation to retain a smooth working organization, such actions placed a penalty on efficiency. There was one other and more deleterious abuse, which took the form of filling a quota by advancing a seaman to petty officer regardless of his qualifications, and sending him. The author

returned to their former Commands as unqualified, two men whose sole qualifications appeared to have been that they were the worse swab handlers on their former stations. That was poetic justice to thoroughly unofficer like conduct, and the men then served under the Command which advanced them to serve under someone else.

## 25. TRAINING OF PERSONNEL.

With the taking over of the first AMc's during the winter of 1939-40, came the problem of procuring the officers and men to man them. It was apparent that it had to be largely a Naval Reserve effort, as those of the Regular Navy were too few. At first, there were no personnel with experience in sweeping mines, by modern methods, to form even a nucleus of instructors. The moored gear was new and the magnetic gear not fully developed. The principles of command, seamanship and tactics had to be worked out to fit the few needs. Admiral Sharp caused one AMc to cruise up and down the East Coast, and one along the West Coast, to demonstrate the type O sweep gear to the Naval Reserve units and to give them a rough idea as to what it was all about. During the fall of 1940, Lt. Cmdr. Craig inaugurated an informal and theoretical course in mine-sweeping at BuShips, which was discontinued when Yorktown opened. Largely, the first AMc's had to train themselves by trial and error, guided by sweeping instructions and by the one officer, of more or less seagoing experience, who was in command of their individual Section Base.

With Fleet and District new construction coming up, it was apparent that no such hit and miss tactics would serve to prepare the needed thousands of officers and men as accomplished sweepers and layers of mines. During September 1940, Admiral Sharp met with representatives of BuOrd and BuShips at which meeting it was decided that a mine warfare school would be established by the joint efforts of the two Bureaus. On 1 Oct 1940, Captain H. R. Greenlee, USN of BuOrd, recommended the Navy Fuel Depot, Yorktown, Va., as a suitable site for the school and Lt. Cmdr. A. W. Ashbrook, USN, who was a veteran of the North-Sea Barrage, as its Commanding Officer. Admiral Sharp accepted these recommendations and enlisted the assistance of Rear Admiral Ben Moreell, (CEC), USN, to obtain the construction. Ground was broken on 16 October, the school was commissioned two and a half months later, 31 December 1940, as the U. S. Naval Mine Warfare School (NMWS), Yorktown, and the first class of students entered on 6 January 1941. The quota for the first class was set at 50 officers and 175 enlisted men, and the length of the course was set at 4 months. As barracks and classrooms were added, the classes were enlarged. Early in 1942, the length of the course was reduced to two months. As they were available, AMc's, YMS's and AM's were assigned to the school, in order to give the students actual training in tactics, and in planting and sweeping of drill mines.



From the graduation of the first class, the NMWS furnished the Commanding Officers of all minecraft commissioned and as replacements for the Captains of those already in commission. Each such vessel also had two or three other officer graduates, and from four to six enlisted graduates. Mine Disposal personnel first graduated from NMWS and then went to the U. S. Navy Mine Disposal School, Washington Navy Yard, for specialization. Others, who were to have duties in connection with mines in any capacity, were also sent there. It was Captain Ashbrook's determination that all key mine warfare personnel were to be graduates of the school, and that policy was carried out.

After standing in line for meals, liquor, ship's service stores and laundry, one Ensign was heard to remark: "Now I know why they are called 'line officers'".

On 9 December 1944, Captain A. H. Richards, USN, ex-Cominron SIX, relieved Captain Ashbrook and, in turn, was relieved by Captain A. V. Wallis, USNR, ex-Cominron SIX on 28 November 1945, as C.O. of NMWS.

In both oceans, the first 220' Class AM's were assigned Commanding Officers who had relatively more experience and they were retained in those positions usually for the first six months, in an effort to give the ship a proper start in life. This was a sound policy, as outside help in training was slow in coming. The well of relatively experienced officers soon ran dry and AM's, as they continued to be commissioned, received relatively inexperienced Captains, usually fleeted up from small AM's, YMS's and AMc's. Usually the AM had a Machinist USN for Chief Engineer but the majority of officers on board had never been to sea before, in any capacity. If any, few of the enlisted men of a ship were of the Regular Navy. Minesweeping was very largely a Naval Reserve effort, most of its members seeing the ocean for the first time from the decks of a minesweeper. All of which makes the successes obtained all the more remarkable.

On both coasts, until late in 1943, crews were assembled in the vicinities of the various builder's yards, where some training was accomplished. The system did not function well, as the training was without central guidance for a long period and it was quite erratic. The main drawback was, however, that more often than not crews were assembled months in advance of the time needed, often exceeding a year, which was a great burden to forces afloat and idleness engendered bad habits in the personnel that might otherwise have been avoided. BuPers, who assembled the crews, had great difficulty in finding out firm commissioning dates and had to be guided by the schedules, which were rarely met. On the theory, perhaps, that cutting off a dog's tail one inch at time hurts less, Superintendents were loath to change their estimated schedules until the last minute.

To correct the above abuses, late in 1943, SCTC San Pedro (Small Craft Training Center, Terminal Island, a subordinate command of Commander Operational Training Command, Pacific Fleet (CotcPac)) and Little Creek (Commander Minecraft Shake Down Group, Little Creek, Va., a subordinate command of CotcLant) were given the task of assembling and training crews for minesweepers. Instead of BuPers ordering the men from the Fleet and the training stations, the Personnel Officer of each of the two Fleets ordered the men necessary to keep the personnel pools filled at SCTC and Little Creek. At those activities, men were received and started through training. As ships were to be commissioned, the personnel needed were skimmed off the top and sent by rail, to arrive the morning of commissioning. This system worked much better in all respects than the old one had.

It was the policy to give the newly commissioned minesweepers a ten day outfitting period after commissioning, at the end of which she reported for duty and left the builder's yard. Unfortunately, many vessels had numerous uncompleted items at the time of commissioning, resulting in construction being carried over into the period, which was a very definite violation of orders. The Protective Commanding Officer (PCO) could not complain, as he was directly under the command of the local Navy Superintendent of Shipbuilding, which is a grave error in policy. During most of 1942, the PCO's were under the command of the various District Commandants but the undesirable results were the same, as the Commandants sent the fitness reports to the Superintendents to be completed. If in spite of the above, the PCO did press his complaints, he would leave the yard without the necessary items. Such carrying over of construction greatly handicapped orderly organization of the ship and the stowage of stores; as well as causing the ship to leave the yard in a dirty and confused condition, could not be entirely corrected in time for the initial inspection two or three days later, after a rough voyage. During the first half of the war, such a minesweeper reported for duty to CincLant or CincPac, as the case might be. During the latter half of the war, she reported to either CotcLant or to CotcPac for a month of shake-down training.

In the Atlantic, during the first half of the war, CincLant passed minecraft over to Comservron FIVE for shake-down training. For the training, the latter used Cmdr. H. I. Sherritt, USNR, and other members of his Staff, as well as Division and Squadron Commanders as they were assigned, and until they completed assembling their forces and left the Area. This training was conducted in Chesapeake Bay and just outside in the vicinity of the Capes, areas which are well neigh ideal for war time training of minecraft. On 18 June 1943, Cominch ordered CotcLant to take over the training of minecraft and the latter set up Little Creek, just outside of Norfolk. On 17 July 1943, Cmdr. T. F. Donohue, USN, assumed command of



Little Creek as CTG 23.7. For anti-submarine training, minesweepers were sent for a few days to either SCTC Miami, Fla., or to Casco Bay, Maine, to work with Commander Destroyers, Atlantic Fleet.

As a rule, until well into 1943, minecraft of the Pacific had no shakedown period. After their ten day outfitting period, they reported to Commander Western Sea Frontier and were sailed forward in the first convoy, with those which were suitably equipped acting as escorts. While not good procedure, it could hardly have been avoided, as there were no sweepers at first and at no time during the war were there enough escorts. Ships were desperately needed, even if a certain percentage made mistakes that might have been avoided had time been available for proper shakedown and organization. An exception to the above was with the six 173' AM's of Mindiv FIFTEEN, Minron FIVE. In June 1942, Cmdr. Caldwell, Cominron FIVE, was sent to the Coast in connection with expediting construction and to supervise their shakedown, the latter being carried out in Puget Sound. Cmdr. Caldwell remained on the Coast until the end of the year. The death of Captain Caldwell from heart trouble, January 1944, was a great loss.

In the fall of 1943, SCTC San Pedro commenced training minesweepers with three days at their Minesweeping School at Santa Barbara, Calif., and there days of anti-submarine work at San Diego Sound School, part of CotcPac. After the four weeks of shakedown training, AM's were usually given ten days availability at a small industrial yard in order to correct builder's deficiencies, as well as necessary repairs to machinery. The vessel then reported for duty to CincPac and was usually assigned to Conservron SIX (CominPac). The BOND reported to CotcPac 1 October 1943, and was the first Fleet Minesweeper to receive formal shakedown training. It is believed that the BOND was the first vessel of any type to be given minesweeping training at SCTC San Pedro and at the Minesweeping School at Santa Barbara. Some YMS's went through training at about the same time and it may be that one of them was actually first.

Following the precedent set the previous year with Gominron TWO and Cominron FIVE, the summer of 1943 saw the practice resumed of sending Squadron Commanders back to the Coast, which practice also worked in some rehabilitation, as such personnel were outside the 18 months overseas policy. In their turn, Cominrons FOUR, TEN, TWELVE, FOURTEEN, and FIFTEEN were so employed for greater or lesser periods. There, they did what they could to expedite construction, and to aid in outfitting shaking down and repairing of their vessels; although their legal status was not firm until their vessels actually reported to CincPac. While successful as far as it went, Squadron Commanders could spend but a few days with each vessel and some vessels were never seen by their Squadron Commanders. Without

such assistance, the YMS's were really on their own, although it was good training for building rugged characters. Sometimes with a skiff and outboard motor; sometimes with a skiff, with or without ears; sometimes with no boat, it just never occurred to the average YMS officer to ask for help from anyone. The same independent spirit was also displayed by the PGM's, with no sign of a boat of any kind, after they joined CominPac for the Okinawa Campaign and subsequent operations.

At the beginning, Comservron SIX offered little in the way of training to vessels passing through Pearl, except aircraft gunnery practices. During 1943, as new construction started to stream westward, training activities were built up. For minesweepers, the most valuable became the minesweeping school and this continued until late in the fall of 1945, when demobilization of instructors caused it to fold up.

There were numerous changes in personnel among the subordinate commands of war time organizations having to do with minecraft, particularly among the Commanding Officers of individual vessels. In the main, these were made in accordance with a fleeting up policy, whereby an officer was loaded with responsibility as rapidly as he was ready for it, in fact usually before he was ready for it but with hope that he would grow with responsibility. There was some abuse of this policy by a few Commanding Officers, bored by periods of unexciting routine, allowing self interest to have too strong a voice, which results in their reported that their Executive Officers were qualified for Command, when often they were not. Desperate for Commanding Officers, BuPers usually would immediately return the Commanding Officer to the Continental Limits for new construction and fleet up the Executive Officer to Command. While such a chain of events was often detrimental, on the whole, the fleeting up policy worked well, which was fortunate, as it was the only policy that could have been used.

Generally speaking, those young and inexperienced Reserve Officers produced, when given responsibility; while those that were carried along, rode with the tide. Responsibility made or broke them, usually the former. It would be well for senior officers to bear this in mind when they are given fresh caught junior officers, from whatever source for training. Not one if born with experience; it is acquired and few will make the same mistake twice.



26. U.S. NAVAL MINE WARFARE TEST STATION; SOLOMON'S ISLAND.  
Md.

During December 1940, steps were taken to establish a de-gaussing and deperming station at Solomon's island, Md.. In August 1942, the Vice Chief of Naval Operations approved a joint plan, by the Bureau of Ordnance and by the Bureau of Ships for the establishment of what was soon known as the U.S. Naval Mine Warfare Test Station, at Solomon's Island. This station was to concern itself with the research, the design and the testing of all types of underwater warfare materials and countermeasures, without regard to Bureau cognizance. The latter was to be determined when the production stage for the material was reached.

First known as the Mine Warfare Experimental Station, Ensign L.T. Hickey, USNR, was appointed Officer-in Charge on 27 August 1942. On 12 November, Captain H.P. CaClair, USN (Ret) took over Inspector of Ordnance in Charge of the Naval Mine Warfare Proving Ground, with Ensign Hickey remaining on as "Administrative Officer". On 15 January 1943, its final name was announced. On 1 July 1943, the Countermeasures Department was established under the direction of Lt-Cmdr. Thomas H. Frost, USNR, and the Underwater Weapons Department under Lt-Cmdr. R. T. Spofford, USN. On 12 February 1945, the Command was relieved by Captain H. G. Williams, USN, ex-Cominron ELEVEN.

While NMWTS tested and recommended modifications to a large variety of underwater ordnance and other materials, in some cases actually manufacturing the modified materials for test, our immediate concern is to briefly acknowledge their contribution to the test and development of mines and mine counter-measures, rather than write a history of that activity.

By means of the research facilities of the Naval Ordnance Laboratory (NOL) and various manufacturers, such as the General Electric Co.; Westinghouse Electric Co.; Bell Telephone Co.; Brush Development Co. of Cleveland; Leeds and Northrup Co.; the Bureau of Ordnance developed mines, which were then sent to the NMWTS for final test prior to their issue for service use. The NMWTS submitted to NOL such experimental data as was necessary to prepare an instruction pamphlet for each mine.

Prior to the establishment of NMWTS, BuShips had methods and materials tested as they could catch a vessel or a luckless individual. This system, or lack of it, took time, which neither the Navy nor the Republic could afford. Another drawback was that as tests necessitated modifications, changing personnel meant that such personnel had to start from scratch in developing test methods, or in educating themselves in test procedure.

Ten major magnetic sweep types, with several modifications of each, were tested. Of these, the "JIG", the "HOW", the two ship single catenary and the small boat magnetic were approved for service. While all four were used with some success in the field, they were all expedients in that it was necessary to adapt materials which were immediately available, or were in production. Of the four, the "JIG" sweep, developed at the instigation of the Assistant Countermeasures Officer, Lt. Wm. B. White, USNR, more nearly meets the requirements of operationally successful gear, but even this type can be improved upon if research continues. It is to be hoped that such development continues; in fact, it must be carried on in order to preclude any chance of our position in 1939 being repeated.

In order to be operationally successful, particularly for the assault phase, it is considered that sweep gear must meet the following requirements:

- (a) be rugged and easily repairable
- (b) assembled elsewhere than in the field; ready to go, with a minimum of time necessary for streaming and recovery; and,
- (c) cover a large area per sweep hour per ship

From March 1943 through April 1944 an important group of tests were made in connection with the study of magnetic fields. Measurements were made, with the assistance of the Coast and Geodetic Survey, using two types of equipment. One developed by the Humble Oil Co. and the other being largely designed by Dr. Irwin Roman of the Section of Geophysics of the Geological Survey, Department of the Interior. A somewhat different type of study was made during 1945.

Some of the other services, tests and development work by NMWTS were:

- (1) training minemen and countermeasures personnel for forces afloat and forces in advanced areas;
- (2) great number of tests and experiments in connection with acoustic mines and countermeasures for acoustic mines;
- (3) in testing captured enemy gear;
- (4) in developing mine locating devices;
- (5) in connection with the "Loch Ness", "Egg Crate" and "Cube Steak";
- (6) in connection with the magnetic characteristics of various mines;



- (7) with explosive cutters, one model of which was the product of the Mine Safety Appliance Co.;
- (8) with 5G "O" type sweep;
- (9) with high speed moored mine gear;
- (10) with trawl and drag nets;
- (11) with bottom sweeps;
- (12) with dan buoys.

## 27. U.S. NAVAL ORDNANCE LABORATORY (NOL).

At the beginning of the war, Captain J.B. Glennon, USN, was the Officer-in-Charge of NOL, being relieved in November 1943, by Captain W. G. Schindler, USN. Doctor R.C. Duncan was the Technical Assistant throughout the war. Doctor Ellis A. Johnson, a member of the Staff of the Department of Terrestrial Magnetism of the Carnegie Institute, was detailed to the Laboratory in the spring of 1940 and given charge of the degaussing program, including the study of ship's fields. Later he was commissioned as a Lt-Cmdr. in the Naval Reserve and finally separated as a Captain, USNR. His activities with Comservon SIX and CominPac will be touched on in later pages. Professor R.D. Bennett, Professor of Electrical Engineering at the Massachusetts Institute of Technology, reported to the Laboratory as a Lt-Cmdr. of the Naval Reserve and was largely responsible for the building up of the Staff of the Laboratory to meet the additional burdens assigned it. He was later put in charge of the mine development program and is now the Technical Director of the Laboratory, with the rank of Captain, USNR.

The following paper was prepared by Doctor Duncan and it outlines in very brief form the activities of NOL.

"The present Naval Ordnance Laboratory grew from a small Mine Laboratory established by the Bureau of Ordnance in the Washington Navy Yard just prior to the close of the First World War. It carried on with a very depleted complement until 1940, when it was authorized to increase its Staff to meet new responsibilities which were being assigned to it. During the war its Staff grew to a maximum of approximately 2000 persons and at the present time consists of about 1700. A new Laboratory plant to cost approximately \$16,000,000, exclusive of equipment, is now being built on a 938 acre tract located at White Oak, Maryland, about twelve miles due north of the United States Capitol.

"Organizationally the Laboratory is included in the Potomac River Naval Command and reports to that Command for administrative purposes. In technical matters it reports directly to the Bureau of Ordnance and is supported from the funds of

that Bureau, which assign or approve all Laboratory projects. During the war it was assigned projects in various fields of ordnance, but the major part of its effort was expended on problems concerned with mines and mining.

"With the advent of the German magnetic mine in 1939, the Laboratory was assigned the following broad programs:

- (a) a study of influence fields of ships,
- (b) the development of methods of protecting American ships against magnetic mines, and
- (c) the development of a series of American influence mines.

"In the study of influence fields the Laboratory designed the equipment and developed engineering techniques for the establishment of magnetic ranges and proving grounds. In some cases it actually had charge of the engineering work involved in these installations. In other cases it furnished detailed instructions. After the installations were complete their operation was usually assigned to the Naval Districts in which they were located, but in most cases the Laboratory furnished the Districts with range operating experts. Moreover, the Laboratory was made responsible for keeping these installations in working order by furnishing new or repaired equipment to replace damaged or obsolete material.

"These ranges and proving grounds were used first to obtain data for the study of ships influence fields and throughout the war to check ships magnetic conditions to determine if the ships were properly "degaussed" or "depermed". Acoustic and pressure measuring instruments were also designed and installed in ranges to gather data in their respective fields.

"Based on the study of results obtained from these magnetic ranges, together with theoretical considerations and Laboratory experiments, the Naval Ordnance Laboratory designed the degaussing installations with which American ships, both Naval and commercial, were equipped and developed other techniques used to reduce the magnetic field of the smaller types of mines. By the know-how of degaussing coil design had reached the point where economic considerations rather than technical knowledge limited the perfection of the actual installations installed aboard ship.

"Approximately \$350,000,000 was expended in producing and installing NOL degaussing designs in American vessels. Since the demagnetization of ships was a defensive measure, it is not possible to estimate its effectiveness, but the number of American ships lost to the enemy's magnetic mines was insignificant throughout the war, even including the Naval Operations involved in the invasion of Europe.



"As soon as information on ships' influence fields began to become available, the Laboratory undertook the development of a series of mines whose mechanisms would respond to changes in these fields, and continued to increase its efforts along this line until approximately 600 employees were giving their full attention to it.

"In the development of a new mine, the procedure outlined below was followed except when the exigencies of the war forced some modification of it.

(a) A new mine or a new mine component is requested by the Bureau of Ordnance, or suggested by the Laboratory and approved by the Bureau of Ordnance.

(b) A preliminary design is developed, an experimental model built, and given exhaustive tests by the designers.

(c) If it proves satisfactory, an experimental lot is constructed, usually by an industrial firm which is in a position to manufacture the item in quantity.

(d) Units of the experimental lot are tested by a Laboratory Test Division, which is organizationally independent of the Design Division. This Division is authorized to subject the units to as severe tests as it considers necessary.

(e) If the design proves to the satisfaction of the Test Division, that it is satisfactory for the purpose intended, it is released to the Bureau of Ordnance for quantity production.

(f) Units from quantity production are then tested by the Naval Mine Warfare Test Station. This Test Station is organizationally independent of the Laboratory itself.

(g) If the Test Station is satisfied that the item is satisfactory it is released for use.

(The Laboratory follows the item through quantity production giving engineering assistance where necessary, and through the service testing, giving assistance again but not controlling the tests or influencing the decisions of the Test Station.)

(h) The Laboratory prepares three types of instructional pamphlets on each item as follows:

- (1) A descriptive pamphlet describing the item and its operation. This pamphlet is usually "Confidential" and is used by mining Officers.
- (2) An assembly pamphlet giving complete and detailed instructions for the assembly and adjustment of the mine and its components.

This is usually classified as "Restricted" and is designed for use of ratings and enlisted men who are responsible for assembling the material.

- (3) An operational pamphlet in which the operational functions of the mine are discussed, such items as sensitivity, target area, damage areas, etc. This pamphlet is usually "Secret" and is designed for use of mine operation planning officers.

(These pamphlets were issued during the war in the form of Naval Ordnance Laboratory Reports. The material would ordinarily have appeared in the form of Ordnance Pamphlets, but due to the short interval of time which intervened between the completion of design and its issue to service, the use of the Reports instead of Ordnance Pamphlets was authorized.)

(i) Officers and enlisted personnel are trained by the Laboratory as experts on each new mine and are then ordered to the field where the mines are to be put into use.

"The Bureau of Ordnance, expended approximately \$88,000,000 in the purchase of NOL designed mines. A mining Campaign carried on against Japan during the spring and summer of 1945 marks the greatest use of aircraft mines ever attempted. About 22,000 aircraft mines were used in this campaign and 1075 Japanese ships, which included 147 Naval vessels, were sunk or damaged sufficiently to be out of commission for at least six months. One out of every twenty mines planted sunk or severely damaged a Japanese ship. This ratio of ships sunk to mines planted is four times as high as any other country. The various antisweeping devices installed in the mines and the difficult to sweep pressure and acoustic mines made Japan helpless as far as clearing the fields was concerned, and her shipping of supplies from the Mainland of Asia to the Japanese Islands and from her home ports to her outlying bases became almost nil.

"Aside from the major mining activities of the Laboratory listed above, it also developed various mine locating devices, and at the request of the Bureau of Ships designed a few mine sweeping mechanisms and studied the output of various types of Bureau of Ships influence sweeping gear.

"Altogether during the war the Laboratory expended approximately 6000 man-years of effort and \$90,000,000 on research and the development of ordnance material, probably two-thirds of which was expended on mining problems. The Navy expended nearly \$1,000,000,000 in putting NOL designs into service."

Doctor Duncan listed 10 basic types of mines developed by the Laboratory during the war, some with several modifications. In the nomenclature of the Navy, each basic type



is called a "mark", and a modification is termed a "mod". These 10 mines covered a wide range of explosive charges, tactical uses and firing mechanisms. Depending on the anticipated use, various mines were designed to be laid by submarine, surface vessel, aircraft, or by either surface or air. Also, mines were either moored, ground or floaters. A wide range of firing mechanisms was developed, with some being a combination of two principles. Firing principles favored were galvanic action, acid horn, magnetic, acoustic, induction, and "pressure".

It will bear pointing out here, just in case the now known lesson be lost, that much material and industrial effort was lost, and even assembly delay in the field was encountered because of the shortage of certain stock parts, because of non-standardization of mine fittings and cases. Each piece of each mine design bears a drawing number which might be, or could have been made, identical with a similar piece of another design. In assembly, one does not dare to substitute for fear that there is a difference in parts which is not apparent. Navy standards for ordnance materials are extremely high and BuOrd is very touchy, and rightfully so, of any modifications or substitutions by those in the field.

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## SECTION I

### COMMUNITY OF INTERESTS OF MINECRAFT OF THE ATLANTIC WAR AND THE PACIFIC WAR

#### 1. COMPARISONS OF THE PROBLEMS PRESENTED BY THE TWO WARS.

Where "Atlantic" is used without qualifications, it is used in the broad sense and includes the Mediterranean, as well as all other areas East of the Americas. Likewise, "Pacific" is used in the broad sense, but often excludes the areas for which Commander Seventh Fleet was responsible, the latter being responsible to General MacArthur and not to Fleet Admiral Nimitz. However, Admiral Kinkaid, Com7thFlt., drew his forces from CincPac, which included minecraft taken from the pool of such craft as might otherwise have been available to the Minecraft Central Command. It was not until 15 August, 1945, that the Seventh Fleet was incorporated into the Pacific Fleet.

While the general minesweeping problems and operations were somewhat similar, there were certain differences in detail presented by the two wars. These differences were mainly due to; variations in the strategy and tactics of the two widely separated ends of the Axis; and, differences of space and distance, which, in turn, had great effect on the distribution of forces. In the Pacific, space and distance caused greater forces to be assigned and caused those forces to be far flung, aggravating all problems.

In the Atlantic, German submarine and mine warfare were much more efficiently conducted than was the case with the Japanese. However, the strangulation of German air power, with the invasion of Normandy, practically ended German mining efforts; whereas, the end of the Okinawa Campaign still left the thousands of Japanese mines on the Continental Shelf of Asia and the thousands of our own mines in Japanese and Korean waters. German air opposition, as distinguished from the "buzz bomb" directed at the helpless populace, was at its height during the Mediterranean Campaign and was whittled down as time went on, being reduced to an annoyance by the time of the Normandy Invasion. In the Pacific, on the other hand, Japanese air opposition increased as our forces closed in on the Empire. Such opposition was greater in the Philippines than it had previously been, and minecraft felt its full weight during the Okinawa Campaign.

Norfolk, Va., and Pearl Harbor were analogous, in so far as ComservLant and Comservron FIVE on the one hand, and ComservPac and Comservron SIX (ComAdCominPac) on the other, were concerned. But, Norfolk was near the centers of the logistics efforts; manufacturing and distribution, as well as the main sources of the personnel. Pearl Harbor was about 6,000 transportation miles from those centers, which was only a beginning of space and distance, and Pearl was entirely dependent on the Mainland. Also, Norfolk was less than two hours by air from the Navy Department.



A telephone call, or a quick trip by air, could often solve a problem in one day, whereas several exchanges of correspondence with the Pacific Command might take weeks or months, or perhaps the point could not be put across at all by correspondence.

In the Atlantic, minecraft staged for Europe from Norfolk, which was close to the Navy Spare Parts Distribution Center, Mechanicsburg, Penna., distributors of diesel spares for the entire Navy. This should have ensured that each vessel had her own "on board spares", at the very least, and handiness was an advantage in emergencies, also. In their innocence, after first commissioning, many minecraft left the West Coast without all of their on board spares, hoping to pick them up at Pearl. After outfitting, such spares could only be requisitioned on priority 3. If any priority 3 requisition was ever filled in the Pacific, during the war, such case is not known. Even those minecraft who returned to the West Coast for overhaul could only requisition on board spares on priority 3, which was to say that the parts could not be obtained. Minecraft of the Pacific either obtained on board spares during outfitting and shakedown, or they did not get them at all. It was the on board spares, that were actually recieved on board prior to leaving the Coast, that kept the Pacific mine-sweeping effort from falling on its face.

As a rule, in the Atlantic, a Division went over seas as such, with their Division or Squadron Commander. This gave them a cohesive unit and gave, for some of the ships at least, more time to make ready. In the Pacific, the AM's had no independent Division Commander and each vessel proceeded as it finished shakedown, if it had any, with sometimes months elapsing before it joined others as a Division. Once in Europe, the enemy opposed mine-sweeping effort was largely concentrated, either in the Mediterranean or along the East Coast of France. While shipping was acute in the Atlantic and diesel spares were not available in quantity there either, this concentration of effort, with the shorter distances involved, made distribution somewhat less difficult; which is not to say that it was not difficult. In the Pacific, parts ordered for delivery in one area might find the vessel a thousand miles away a month later. For instance, parts were delivered at Ulithi in March, 1945, for vessels which were in the Philippines and which had joined the Seventh Fleet in September, 1944.

In the Atlantic, minesweeping was not solely an American effort, as it was in the Pacific Ocean Areas (POA). Britain took care of her own Coasts, Northern Europe, parts of the Mediterranean; and, contriguted minesweepers for the assaults and to the American "Y" Squadron, which operated along the East Coast of France for a solid year. While, in many cases, more rugged in opposition and types of mines encountered, the assault sweeps of Europe were far fewer in number than those of the Pacific. The distances from the European stagings areas were much less, which practically assured that a sweeper leaving in good condition would arrive so, barring battle damage. While the numbers and composition of the minesweepers engaged in the Atlantic

assaults were comparable to most of the Pacific operations, they never reached the proportions that the Task Groups did at Leyte Gulf, Lingayen, Iwo Jima, Okinawa, the post hostilities sweeping, nor those planned for the invasion of Kyusku.

Finally, were an unfavorable situation to develop in Europe, shorter distances and fewer transfer points allowed quicker corrective action. To the far reaches of the Pacific, there were many transfer points for air freight and, while air shipments to bases were usually delivered, much to vessels went astray. With demobilization and typhoons, delivery of air shipments to vessels totally collapsed, leaving large piles of air freight on Guam and Okinawa.

## 2. THE SQUADRON ORGANIZATIONS.

In time of peace, with the DM's, DMS's and comparable types, it had been the practice to have a Division Commander, without other regular duties, for each of two Divisions, with the Squadron Commander being the Division Commander of the remaining Division, as additional duty. With hostilities, this policy was abandoned in the Pacific, except for Squadrons THREE, TWENTY, and TWENTY-ONE. About half of the time that they were in existence, until they left for the Pacific, the AM Squadrons originally assigned to the Atlantic, SIX, SEVEN, ELEVEN and THIRTEEN, had individual Division Commanders assigned. Such a Division Commander aided in outfitting, organizing and training his own Division, then left for Europe with it and acted as minesweeping Unit or Group Commander when the need arose. Besides being a sound policy, the position of individual Division Commander was an excellent training ground for minesweeping and other command functions, and those occupying those positions became the pool from which many of the later minesweeping Squadron Commanders were drawn. While it would be desirable to identify all of such individual Division Commanders, as is done below with Squadron Commanders, results obtained to date have been so meager that it has not been worthwhile to set them down. Where individual Division Commanders were not assigned, it was customary for BuPers to designate the senior Commanding Officer to act as such. Such changes occurred so frequently that it would be entirely impracticable to list them all, even if they could be traced.

From the first days of the Pacific War, when Cominron TWO took over the Oahu Offshore Patrol, the pattern was set to use the Squadron Commanders as Task Group or Unit Commanders, regardless of the numbers of their own vessels engaged, if any and a somewhat similar policy was used in the Atlantic. Usually these were minesweeping Squadron Commanders but, from June 1945 on, some minelaying Squadron and Division Commanders served as Task Group Commanders, with a minesweeping Squadron Commander as Sweep Group Commander. The Minelayers were not trained in minesweeping but they were senior officers, with relatively long years of service in the Regular Navy and relatively wide experience.



In the early days, some Squadrons consisted of two or more types of vessels, but this unsatisfactory and artificial condition was remedied as soon as new construction permitted. From time to time, Squadrons varied in numbers of Divisions assigned; usually there were three, but sometimes there were two. Also, the numbers of vessels assigned to the Divisions varied slightly; usually there were six in the case of the AM's, but sometimes four, five or seven. Such variations were usually caused by the number of vessels constructed by a single contractor, losses, or disposal to lend-lease.

All but Squadrons NINE and THIRTEEN eventually found their way to the Pacific, although some of the earlier Squadron Commanders did not go there, as such at least. It will be noted that there was considerable shifting of the same officers from Squadron to Squadron, without the reason being always apparent. In all cases it has not been possible to find the exact date on which Squadron Commanders were relieved.

#### MINRON ONE (old DM)

12 Dec/41	Captain Geo. D. Hull, USN.	
1 Jul/42	Captain Ross P. Whitemarsh, USN	
1 Oct/43	Captain Robley W. Clark, USN	7 Feb/45
7 Feb/45	Commander R. T. Spofford, USN	May/45

#### MINRON TWO (old DMS)

	Captain Geo. F. Hussey jr., USN	
	Commander W. H. Hartt jr., USN	14 Dec/42
14 Dec/42	Commander Stanley Leith, USN	17 Aug/43
22 Aug/43	Commander Wayne R. Loud, USN, dissolved	Jun/45

#### MINRON THREE (DM)

9 Dec/44	Captain A. M. Townsend, USN, hospitalized in	Oct/45
Nov/45	Captain A. L. Rorschach, USN	
	Comindiv SEVEN - Captain W. G. Beecher, USN, to 12 May, then Captain H. Farrow, USN	
	Comindiv EIGHT - Captain J. H. Sides, USN, to 30 April, then Captain H.J. Armstrong jr., USN	
	Comindiv NINE - Captain Townsend; Captain Rorschach	

MINRON FOUR (220' AM)

Nov/43	Commander Ralph S. Moore, USNR	12 Jan/45
12 Jan/45	Commander T. F. Donohue, USN	Oct/45
Oct/45	Commander O. B. Lundgren, USNR	Jan/46

MINRON FIVE (220' AM)

17 May/42	Commander K. C. Caldwell, USN, died on	17 Jan/44
17 Jan/44	LCDR J. E. Stonington, USNR	3 Mar/44
3 Mar/44	Commander Fredrick F. Sima, USNR	1 Sep/44
1 Sep/44	Commander G. L. Phillips, USNR	4 May/45
4 May/45	Commander G. W. Allen, USN	Jan/46

MINRON SIX (220' AM)

	Captain R. R. Hartung, USN	14 Mar/43
14 Mar/43	Commander A. H. Richards, USN, hospitalized	12 Feb/44
12 Feb/44	Commander W. L. Messmer, USN	21 Apr/44
21 Apr/44	Commander R. C. Brown, USN	Nov/44
Nov/44	Captain A. V. Wallis, USNR	31 Jan/45
31 Jan/45	Commander A. M. Robinson, USNR	Aug/45
Aug/45	Commander J. L. Maloney, USNR	

MINRON SEVEN (220' AM)

	Captain C. C. Miller, USN	9 Jul/42
18 Jul/42	Commander A. G. Cook jr., USN	24 Jul/43
24 Jul/43	Commander H. Plander, USN	20 Dec/44
20 Dec/44	Commander E. A. Ruth jr., USNR	Sep/45
Sep/45	Commander J. W. Meiere, USNR	Jan/46



MINRON EIGHT (173' in the Atlantic;  
220' in the Pacific)

11 Dec/42	Commander T. F. Donohue, USN	17 Jul/43
1 Oct/43	LCDR G. L. Phillips, USNR	Apr/44
Apr/44	LCDR J. W. Mciere, USNR, dissolved	1 Jun/44
Jul/45	Captain L. F. Freiburghouse, USN	30 Nov/45
30 Nov/45	Captain Fredrick F. Sima, USNR	Jan/46

MINRON NINE (ex-fishing boats)

Apr/42	Commander W. R. McCaleb, USN	spring/44
Spring/44	LCDR E. C. Davis, USNR, dissolved	2 Jun/44

MINRON TEN (180' AM)

31 Aug/43	Commander E. D. McEathron, USN	26 Apr/45
26 Apr/45	Commander John M. Wyckoff, USNR	

MINRON ELEVEN (180' AM)

	Commander R. T. McDaniel, USNR	20 Jul/44
20 Jul/44	Commander H. G. Williams, USN	30 Nov/44
30 Nov/44	Commander A. S. Robinson, USNR	25 Jan/45
25 Jan/45	Commander J. S. Chambers, USNR	11 Mar/45
28 Mar/45	Commander S. B. Wetmore, USNR	Dec/45

MINRON TWELVE (180' AM)

4 Dec/43	Captain Paul C. Wirtz, USN	22 Sep/44
22 Sep/44	Captain L. F. Freiburghouse, USN	10 Jun/45
10 Jun/45	Commander J. L. Maloney, USNR	Aug/45
Aug/45	Commander F. G. Crane, USNR	

MINRON THIRTEEN (180' AM)

May/44	Commander H. G. Williams, USN	Jul/44
Jul/44	Captain R. D. Edwards, USN	Dec/44
Dec/44	LCDR S. B. Wetmore, USNR	28 Mar/45
22 Jun/45	Commander F. G. Crane, USNR	17 Jul/45
17 Jul/45	Commander J.R. Keefer, USNR, dissolved on 4 Sep/45	

MINRON FOURTEEN (180' AM)

28 Oct/44	Commander Fredrick F. Sima, USNR	30 Nov/45
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MINRON FIFTEEN (180' AM)

6 Feb/45	Commander T. W. Davison, USN	
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MINRON TWENTY (DMS)

16 Nov/44	Captain R. A. Larkin, USN	11 May/45
11 May/45	Captain Wayne R. Loud, USN	Dec/45
	Comindiv FIFTY-EIGHT - Commander F.P. Mitchell, USN	
	Comindiv FIFTY-NINE - Captain Larkin; Captain Loud	
	Comindiv SIXTY - Captain M.D. Mathews, USN, to 7 June, then Commander E. W. Taylor, USN	

MINRON TWENTY-ONE (DMS)

May/45	Commander H. H. Smith-Hutton, USN	Aug/45
Dec/45	Captain T. F. Donohue, USN	
	Comindiv SIXTY-ONE - Captain W.L. Dye, USN	
	Comindiv SIXTY-TWO - Captain Smith-Hutton; Captain Donohue	
	Comindiv SIXTY-THREE - Captain N.R. Curtin, USN	

MINRON 101 (YMS)

9 Feb/45	Lieutenant C. D. Sweet, USNR	14 Jul/45
14 Jul/45	LCDR J. D. Riner, USNR	Aug/45
Aug/45	LCDR F. K. ZINN, USNR	Nov/45
Nov/45	Lieutenant S. C. Klein, USNR, dissolved	4 May/45



MINRON 102 (YMS)

LCDR T. E. Lavender, USNR, ordered 9 Apr/45; did not take office but served as a Task Unit Commander at Okinawa and hospitalized 24 Jun/45

Aug/45	LCDR J. D. Riner, USNR	Nov/45
Nov/45	Lieutenant D. L. Hill, USNR, acting	Dec/45
Dec/45	LCDR S. H. MOORE, USNR, dissolved	4 May/46

MINRON 103 (YMS)

Lieutenant R. E. Crowley, USNR, ordered 10 Apr/45, did not take office but served as a Task Unit Commander At Okinawa and MinPac Representative at Guam

1 Jun/45	LCDR E. A. Weymouth, USNR	Nov/45
Nov/45	Lieutenant (jg) H.J. Johnson, USNR, acting	Dec/45
Dec/45	LCDR H. D. Vanston, USN, dissolved	May/46

MINRON 104 (YMS)

22 Mar/45	Commander C. M. Fligg, USNR	2 Jun/45
4 Jun/45	LCDR E. B. Dexter, USNR	Nov/45
Nov/45	Lieutenant R. F. Harwood, USNR, acting	4 Dec/45
4 Dec/45	LCDR R. V. Lange, USNR, dissolved	4 Apr/46

MINRON 105 (YMS)

21 May/45	LCDR C. A. Bowes, USNR, acted as Task Group Commander during Okinawa Campaign, but not installed until 21 May/45	27 Jun/45
27 Jun/45	LCDR M. T. Lambert jr., USNR	Nov/45
Nov/45	Lieutenant H. J. E. Aherns, USNR, dissolved	Apr/46

MINRON 106 (YMS)

12 Jun/45	LCDR S. S. Leon, USNR	Nov/45
Nov/45	LCDR C. T. Latimer, USN, still active in May/46 engaged in decommissioning vessels and winding up Minecraft affairs in the Philippines	

MINRON 107 (YMS)

Sep/45	Lieutenant C. D. Sweet, USNR	18 Jan/46
18 Jan/46	Lieutenant P. R. Neyland, USNR, dissolved	4 May/46

MINRON 108 (YMS)

Jan/46	LCDR J. W. Gross, USNR, dissolved	Apr/46
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YOKE SQUADRONS (YMS Squadron in Europe;  
Allied Expeditionary Forces,  
Western Naval Task Force)

Jun/44	Commander G. W. Allen, USN	15 Mar/45
15 Mar/45	Lieutenant H. J. White, USNR, dissolved	17 May/45

3. NEED FOR STRONG DIVISIONAL ORGANIZATIONS.

It is considered that optimum organizational requirements for far flung operations, such as occurred in the Pacific, are:

- (a) Squadron Commander, for each of three Divisions, as student and planner, policy maker and supervisor, and operational Task Group or Unit Commander;
- (b) Except for DMS's each Division to consist of either six or seven vessels, preferably seven;
- (c) Identical machinery throughout;
- (d) Consecutive bow numbers for the units of a Division would a matter of convenience, although not a case of necessity;
- (e) Division Commander, without other assigned duties; with a Division Engineer as an assistant; and,
- (f) Vessels to operate continuously as a Division, including simultaneous yard overhauls.

In both oceans, requirements (a) through (d) were fairly well met for types larger than the YMS's.

While the Squadron Commanders in the Atlantic were able to work more closely with their vessels, the Pacific Squadron Commanders were often placed somewhat in the absentee landlord class. They were farmed out to various assault Commanders to act as Unit or Group Commanders, during which periods they might or might not have any of their vessels with them. When not actually engaged in an assault operation, necessity caused their use in planning, staff duties and many other types of activities. While all these were essential duties, such employment caused them to lose touch



with their Squadrons, and left their Squadrons without the benefits of their assistance. Divisions of a Squadron might be scattered all over the Pacific, sometimes from Alaska to the Admiralties. Close control was not possible by mail, even had it not taken weeks and months for delivery. Additionally, eighteen to twenty-one ships were too many to give more than cursory service to; while individual Captains, not being under sustained close observation, were not given the recognition that they deserved, letters of performance of duty became stereotyped, reports of fitness were oftenevasive and meaningless; all of which made it difficult or impossible to estimate individual capabilities and to locate talent. The latter was particularly felt when it came time to fill the billets of the Staff of CominPac and to assign the Commanders of the YMS Squadrons. The finest training ground for the development of the qualities needed had been neglected, and there just was no way to obtain trained personnel without robbing Peter to pay Paul.

For the senior Captain to also be Division Commander was satisfactory from a tactical point of view, with the exception that one Commanding Officer was also a Division Commander and also a Task Unit Commander in some operations in the Philippines; which was too great a load for any one individual to carry with the degree of efficiency desirable. With duties as Commanding Officer to perform, he did not have time, nor the necessary detached point of view as his commission probably carried the same date as two or three other Captains of the Division, to see that each vessel of his Division was organized and operated along sound lines, or that sound engineering practices were common to each. The net result was that machinery break-downs occurred which might have been prevented, operations were slowed and complicated, with each vessel a direct reflection of the capabilities and personality of her Captain, and little chance of internal deficiencies being pointed out and corrected.

It is not known just why the Pacific Command was discriminated against in the matter of individual Division Commanders. With Divisions spread over thousands of miles, those of the Pacific needed them perhaps even more than did the Atlantic Command. It was probably felt that experienced personnel were at such premium that such could not be afforded. Admitting the graveness of such personnel shortage and admitting that a poor Division Commander would be worse than none, it is the opinion that one with the proper personality would have been an economy of experienced personnel. Provided the Division were kept together, such a Commander could develop a more efficient Division out of vessels with Captains of even less experience than those that were actually assigned. Enough of the early AM Captains were flected up to Destroyer Escorts, thereby being eliminated from minesweeping, to have started such a system. Once started, the needed flow of additional personnel would have risen to the top from minecraft themselves.

As was to be expected, vessels differed greatly in engineering reliability and efficiency. While some of the difficulties could be traced to the door of the Navy Superintendents of Shipbuilding, mainly such variations were a direct reflection of the capabilities and experience of the ship's Engineering Department and, more directly, those of the vessel's Chief Engineer. Had there been competent Division Engineers, there would have been some variations between Divisions, depending on their skill and leadership. However, the average efficiency would have been much greater. Compared to our YMS's in European operations, statistics showed that fewer BYMS (British YMS) were proportionately sunk by acoustic mines, in addition to the latter obtaining more effective results. These were facts that basic design of vessels could not account for. Referring to these facts, a U.S. official document states; "It is also understood that the BYMS should have the best maintenance, since they have an engineer officer attached to each flotilla, and living on board ship. The fleet Minesweepers do not have such an officer". The report did not so state, but the YMS's did not have such an officer either. The saving of the personnel of even one sweeper, not to mention the vessel herself, would have more than offset the drain imposed by the assignment of a competent Division Engineer; and that would have been only one of many benefits. One of the great lessons of the war is that decentralization is essential. Any Command would snarl itself into ineffective knots were it to attempt to deal with all details; yet, some one has to care for the details, for they are the things that make any plan operate.

As a general rule, a Division of AM's was formed from the output of a single builder. This meant that Divisions were long in forming, as it took from five to eight months to complete a Division of from four to seven vessels. As was done in one case late in the war, were a Division formed from the output of more than one builder, of ships in order of commissioning dates, they would have had different engineering plants, scrambled bow numbers and generally be of different types; all of which would have been had. On the other hand, great advantages would have accrued could all vessels of a Division have gone through shakedown together and operated continuously together thereafter. They would have been a team, which would have acted on doctrine with a minimum of signals and instructions. To a certain degree, this goal was attained in the Atlantic, as some Divisions were essentially complete by the time that they were needed for invasion purposes. In the Pacific, efforts to keep the DMS's operating as Divisions were generally successful. Similar efforts to employ the AM's met with limited success and the end of hostilities still found some vessels deployed from their sisters. There was no effort made to form YMS's into Divisions.

Some of the needed advantages might have been obtained by the formation of temporary Divisions to cover the building and commissioning periods and, also, by sending a few of the officers of ships not yet commissioned for tours of temporary duty in earlier ships of the Division that would be their permanent assignment.



The above remarks apply with equal force to the YMS's, who were worse off when it came to guidance along sound lines, and they needed such guidance more. With less experienced Captains and other officers, they were scattered amongst the various Island Commands, usually under the operational control of officers who had little or no knowledge of their peculiar problems. When they were assembled for a sweeping task, they were usually in deteriorated condition and lacking in training. Perhaps two or three would be received from any particular area and formed into a sweep unit with others of like handicap; with few in the resulting formation ever having swept as a sweep unit before. After a few days, conditions might force a shift of vessels between Units, or of Units between Groups.

Based on the experience with the YMS's of "Y" Squadron, early in 1945 the forming of YMS's into Squadrons of twenty Ships each was approved. This was a long step in the right direction but it did not go far enough and, also, it came too late to be effective. Delayed primarily by the difficulty of finding suitable personnel with training in functions of command, as they applied to minesweepers, and, secondarily, by the delay encountered in converting the ACM flagships and outfitting them with diesel spares, the first YMS Squadron Commander did not commence to function as such until the latter part of the Okinawa Campaign. Even then, although they performed valuable services for groups of YMS's, their services were for any handy group of YMS's that were operatable and they were never able to gather their Squadrons together as units. The bow numbers of the YMS's operating in any area or group could hardly have been more thoroughly shuffled had decks of cards been used, which no doubt meant that machinery types were thoroughly shuffled also.

#### 4. NEED FOR STANDARD DOCTRINE: WITH SOME ATTEMPTS TO MEET THE NEEDS.

While DM's and DMS's had developed more or less standard doctrine, over the years of operating experience, the crying need of the newer types was for standard organizations, doctrine, damage control and other procedure for individual vessels; things that could reach down and quickly indoctrinate all hands with tested procedures. While efforts were made by some, as time could be taken from other duties, these needs were never fully met and standards, as guides for action, have still to be set up. Comservron SIX and later ComAdCominPac, issued a monthly pamphlet entitled "Monthly Orders", which was of great value in promulgating changes, orders from various sources and information. It became the custom for individual Squadron Commanders to issue multifarious mimeographs, such as material bulletins and information bulletins, whose aim was to pass around the experiences and lessons of others to the vessels scattered over wide areas. However, nowhere could the newcomer obtain concentrated material with which he could sit down and find out what made his organization tick, by means of a few hours of study. The newcomer was left to grope his way around until he found which way was up.

Lt-Comdr. Allen, of the AUK, had spent some months during early 1942 developing a detailed organization for that vessel, which was later used as a basis for developing similar works by various other minecraft Commanding Officers and Squadron Commanders. During mid-summer of 1943, freely using the Allen book and other organization books, Cominron TEN developed an organization for his Squadron, which attempted to incorporate the lessons of the war to that date. Because of the type of questions asked by young officers, this book developed into being more a text book on procedure, than it did a straight organization book. Recognizing this, early in 1944 Cominron TWELVE, Captain Wirtz, wrote a smaller pamphlet for his Squadron which more nearly approached being a straight organizational outline for a 180' AM. There is still need for further development of both types of books, before the lessons of the war become hazy, probably a loose leaf affair under one cover.

During early 1944, the Navy Department issued a minesweeping manual, largely written by Cmdr. H. B. Stevens, USNR, Lt. C. E. Walden, USNR, and Lt. M. D. May, USNR. This was a valuable volume covering the technical aspects of minesweeping, as they were known at that time. It was rather weak in those sections covering tactics. The Navy Department is now compiling two volumes covering these two fields.

The Bureau of Ships caused damage control books to be issued for 220' AM's, but not for 180' AM's or smaller classes. Cominron TEN had compartment check-off lists and a damage control book for the 180' Class printed, and eventually issued them to all 180' hulls building on the West Coast. The plates and lists were prepared by his assistant, Lt. Scott McFarland, USNR, while Cmdr. McEathron wrote the text. The lists were issued twice in tentative form, were tested for four or five months before the third edition was issued in permanent form. This proved the fallacy of expecting a vessel, twelve days after commissioning, to report for shakedown with satisfactory check-off lists prepared by ship's officers.

Mine Warfare Notes, a monthly pamphlet issued by the Office of Naval Operations, was a great assistance in keeping those in the field informed as to developments in mine Warfare.

## SECTION II

### THE ATLANTIC COMMAND

#### 5. SERVICE FORCE, ATLANTIC FLEET, AND SERVICE SQUADRON FIVE.

While there were many changes in personalities of the Atlantic Command, as an organization it remained fairly stable. On the contrary, as we will see, the Pacific Command went through many stages before it developed into a Type Command.



On 7 December, 1941, Vice Admiral Randall Jacobs, USN, was Commander Train, Atlantic Fleet, but was soon called to Washington to head the Bureau of Personnel (BuPers). He was relieved on 19 December, 1941, by Vice Admiral F. L. Reichmuth, USN. On 24 February, 1942, the Train, Atlantic Fleet, was changed in name to Service Force, Atlantic Fleet. On 22 August, 1942, Vice Admiral Alex Sharp, USN, who had been Commander Battleships and Commander Battleship Division FIVE, Atlantic Fleet, relieved as ConservLant. On 11 October, 1944, Admiral Sharp's Chief of Staff Commodore C. E. Battle, USN, took over until relieved on 23 December, 1944, by Vice Admiral S. A. Taffinder, USN. The latter was relieved in July, 1945, by Vice Admiral R. C. Giffon, USN, who in turn was relieved by Rear Admiral T. L. Gatch, USN, during November, 1945.

Likewise, December Seventh found Captain Monroe Kelly, USN, as Commander Train Squadron FIVE, who became Conservron FIVE in February when the name of the senior Command was changed. Trainron (Servron) FIVE was a subordinate command of ContrainLant (ConservLant). The various commanders of Service Squadron FIVE were:

	Captain Monroe Kelly, USN	17 Mar/42
17 Mar/42	Captain C.C. Miller, USN	9 Jul/42
9 Jul/42	Lt-Cmdr. C. G. Rucker, USN, acting	18 Jul/42
18 Jul/42	Commander A. G. Cook jr., USN	7 Oct/42
7 Oct/42	Captain P. H. Talbot, USN, hospitalized.	25 Oct/42
26 Oct/42	Captain R. R. Hartung, USN	3 Dec/43
3 Dec/43	Captain G. F. Mentz, USN	30 Aug/44
30 Aug/44	Captain R. D. Edwards, USN	13 Oct/44
13 Oct/44	Captain P. C. Wirtz, USN	10 May/45
20 May/45	Captain A. V. Wallis, USNR	Nov/45
Nov/45	Commander C. R. Cunningham, USNR, until absorbed by ConinLant in January, 1946.	

Although many vessels were assigned to Contrainron FIVE on paper, actually those available at the time of the Pearl Harbor attack were 5 DMS's; 4 Bird Class AM's; 2 AM's, 220'; 8 AM's, small; and, 4 AMc's. These were organized as follows:

#### Minron SEVEN

Mindiv NINETEEN: Consisting of 5 DMS's, used in the invasions of North Africa and transferred to the Pacific in December, 1943.

Mindiv TWENTY: 4 World War I Bird Class AM's, changed to AT's on 1 June, 1942, and assigned to Conservron ONE and the Division was dissolved.

Mindiv TWENTY-ONE: RAVEN and OSPREY, of which the OSPREY (AM-56), Lt. C.H. Swinn, USNR, was mined and sunk off Normandy on 5 June, 1944. To these were added the AUK in January, 1942, and four more 220' AM's late in 1942. This Division was retained in NW Africa for a Long Period, was returned to the East Coast in July, 1945, and was overhauled. The RAVEN and AUK were retained on the East Coast, while the remaining four went to the Pacific, for post hostilities sweeping, during September, 1945.

#### Minron NINE

Mindiv TWENTY-FIVE: AM's 73, 74, 75 and 77

Mindiv TWENTY-SIX: AM's 70, 71, 72 and 76

The above eight AM's were makeshifts, being ex-fishing boats taken over from civilian owners, and were from 124' up to 147' in length, and from 230 up to 300 gross tons. Four were commissioned during the last quarter of 1940 and four were commissioned during the first quarter of 1941. These two Divisions and the Squadron were dissolved on 2 June, 1944, with the vessels of Mindiv TWENTY-SIX going to Conservron ONE and the others to ComNavDis ONE.

Mindiv TWENTY-SEVEN: Consisting of four 97' AMc's, numbers 38, 39, 61 and 76, which were assigned elsewhere during the first quarter of 1942.

The build up of forces during the first three quarters of 1942 was slow, with the TERROR being commissioned in July, and reporting for duty somewhat later. During the summer of 1942, all CM's other than the TERROR were assigned to Scrvron FIVE and formed into Mindiv FIFTY, each reporting as she was ready for service. Mindiv FIFTY was dissolved on 17 April, 1944, as by that date all but the MIANTONOMAH were either in the Pacific or on their way. On 3 August, 1942, the YMS 5 reported for duty to Conservron FIVE and was the first YMS to pass to the control of that Command.

The YMS's, the TERROR and Mindiv FIFTY were administered direct by Conservron FIVE, with no Squadron organization, as was also the case with AMc's 42, 43, 46, 47, 50 and 84 when they reported in the fall of 1943. Of these six AMc's, three were released in June 1945, and three stayed to the end.



The YMS's were administered somewhat differently in the Atlantic than in the Pacific. True, the collection of all YMS's under a single head in the Pacific was a gradual process, as will be seen, and it was not until 15 August, 1945, that it was finally accomplished. That date had been planned in advance, so the cessation of hostilities did not affect it. In the Atlantic, no attempt was made to centralize administrative control of them in Comservron FIVE. After ComLant took over all training in June, 1943, Comservron FIVE had no interest in them. Prior to that, he gave them shakedown training, then passed them on to others for operational and administrative control; much as was the case in the earlier days in the Pacific with Com7thFlt., ComSouPac., and ComNorPac. Comservron FIVE held a few YMS's under his direct Command, a peak of 21 but usually about 14, but even these were usually loaned to others for operational control.

On 18 March, 1944, Cominch ordered Commander Eastern Sea Frontier to nominate twenty YMS's and ComservLant to nominate fourteen YMS's for foreign service. These thirty four ships were turned over to Comservron FIVE for training and outfitting. The major portion was sailed to Britain for duty with the 12th Fleet and a few for duty in the Mediterranean, with the 8th Fleet. Comservron FIVE had some YMS's already serving with Com12thFlt. on temporary duty and, on 23 April, 1944, turned seven of them over to the latter for permanent duty. It was from those YMS's assigned to Com12thFlt. that "Y" Squadron was formed and which operated with the Western Naval Task Force.

As AM's were added to Servron FIVE, there was some shifting of individual vessels between Divisions and Squadrons, for various reasons. It is not practical to list each of these changes, and is considered sufficient to briefly trace the Divisions.

During the winter of 1942/43, twelve 220' AM's were commissioned and assembled; as well as twelve of the total of eighteen 173' PC's which were converted to AM's for temporary service. These were organized as follows:

#### Minron SIX

Mindiv SIXTEEN: Six 220' AM's, of which the SENTINEL (AM 113), Lt. Cdr. G. L. Phillips, USNR, was mined and sunk off Sicily on 12 July, 1943, and the PORTENT (AM 106), Lt. H.C. Plummer, USNR, was mined and sunk off Anzio on 22 January, 1944. However, the DEXTROUS (AM 341), Lt-Cdr. S.S. Trotman, USNR, was added as one replacement.

Mindiv SEVENTEEN: Six AM's, of which the SKILL (AM 115), LtCdr. E.J. Kevern, USNR, was mined and sunk off Naples on 25 September 1943. On 15 July 1943, while under fire of enemy shore batteries, the STAFF (AM-114), Cdr. R.T. McDaniel, USNR, was mined by a moored mine in an enemy defensive

field off Port Empedocle, Sicily. This mine opened up an approximately 12'x12' hole in the forward engineroom, over which was placed a wooden patch by divers at Licata, Sicily. Although the after engines were operatable, she was towed to Oran, where permanent hull repairs were made. It will be noted that the SKYLARK, Chapter 7, Book 1, page 18, and the STAFF were mined forward and with moored mines. The other 220' AM's that were mined, were sunk by ground mines, which have a much heavier charge.

#### Minron EIGHT

Mindiv TWENTY-THREE: AM's 88 to 93, incl.

Mindiv TWENTY-FOUR: AM's 94 to 99, incl.

As pointed out in Chapter 9, Book 1, this type of AM was entirely unsatisfactory. On 9 May 1944, Cominch authorized the removal of minesweeping gear and the above twelve AM's were reconverted to PC's 1586 to 1603, incl. The Squadron was dissolved on 1 June 1944. In July, 1945, Minron EIGHT was formed in the Pacific but it had nothing in common with the above, except the name.

During the fall of 1943, with the transfer of the DMS's to the Pacific, Minron SEVEN was down to Division TWENTY-ONE, of seven 220' AM's. To equalize the Squadrons, Mindiv EIGHTEEN, which was just being activated, was assigned to Squadron SEVEN, although it had tentatively been assigned to Squadron SIX. Thus was formed:

#### Minron SEVEN

Mindiv EIGHTEEN: Six 220' AM's, of which the SWERVE (AM 121), Lt. A. Morthland, USNR, was mined and sunk off Anzio on 9 July 1944, and the TIDE (AM 125), LtCmdr. A. B. Heyward, USNR, was mined and sunk off Normandy on 7 June 1944.

Mindiv TWENTY-ONE: Six 220' AM's after the loss of the OSPREY on 5 June 1944.

During the spring of 1944 the three ACM's, BARRICADE, CHIMO and PLANTER, were acquired as outlined in Chapter 21, Book 1.

Mine Squadron ELEVEN commenced to form in September 1943, with the last ship commissioned in August, 1944. This Squadron originally was of three Divisions, each of six 180' AM's, of which one Division was essentially complete by the end of 1943.

Mine Squadron THIRTEEN commenced to form in May 1944, with all but one ship commissioned by August of that year. This Squadron originally consisted of three Divisions, each of six 180' AM's.



After losses were checked off and although a few ships were not yet commissioned, the middle of 1944 saw the minesweeping forces of Comservron FIVE, other than a few YMS's and AMc's stabilized as follows:

Minron SIX (220' AM's)

Mindiv SIXTEEN: Five AM's. Mindiv SEVENTEEN: five AM's.

Minron SEVEN (220' AM's)

Mindiv EIGHTEEN: Four AM's Mindiv TWENTY-ONE: Six AM's

Minron ELEVEN (180' AM's)

Mindiv THIRTY-ONE: Six AM's Mindiv THIRTY-TWO: Six AM's

Mindiv THIRTY-THREE: Six AM's

Minron THIRTEEN (180' AM's)

Mindiv THIRTY-SEVEN: Six AM's Mindiv THIRTY-EIGHT: Six AM's

Mindiv THIRTY-NINE: Six AM's

As 1943 and 1944 had witnessed the build up of Fleet Minesweepers for Comservron FIVE, the year 1945 saw their depletion to the Pacific and to lend lease. When the trek commenced, hostilities were still at their height in Europe, but diversion was possible due to the winning of the "Battle of the Atlantic" and also to the fact that British minesweepers, with some of our YMS's could care for the mopping up. Such operations were extensive but not of great urgency.

On 22 February, 1945, at the Canal Zone, Cominron SIX reported to CinePac for duty with CominPac, with his two Divisions.

During the same month, Mindivs THIRTY-ONE and THIRTY-THREE were scheduled for Pacific lend lease, which would have left Cominron ELEVEN with only Mindiv THIRTY-TWO, which was still in Europe and did not go to the Pacific until the middle of July. Cominron ELEVEN was therefore given Mindiv THIRTY-EIGHT, formerly of Minron THIRTEEN, and he reported with it to CinePac on 10 April 1945, from the Canal Zone.

Of Minron SEVEN, Division EIGHTEEN reported to the Pacific on 1 May 1945, followed on 17 September by Division TWENTY-ONE, less the AUK and RAVEN.

Minron THIRTEEN having been reduced to Divisions THIRTY-SEVEN and THIRTY-NINE became a catch-all for stragglers, and her composition went through many minor changes. On 28 August 1945, four AM's of Mindiv THIRTY-SEVEN were transferred to China under lend lease. Finally, on 4 September, Minron NINE and Mindiv THIRTY-SEVEN were dissolved and Mindiv THIRTY-NINE was re-organized, with six 180' AM's.

Comservron FIVE laid some 11,247 mines in Atlantic defensive mine fields and 42 in an offensive field. These were all laid by July 1943, and only surface laid World War 1 type mines were used. Except for these mining actions and except for using the CM's for training minemen, Servron FIVE was almost exclusively a minesweeping organization, without the extraneous and extracurricula activities which proved so burdensome to Comservron SIX (CominPac).

#### 6. MINECRAFT IN THE MEDITERRANEAN.

During May 1943, all American AM's, YMS's, PC's and SC's of the Mediterranean (EIGHTH FLEET) were grouped together and placed under Commander Escort Sweeper Group (CTG 81.4), Cmdr. Messmer, Comdiv SEVENTEEN of Mine Squadron SIX. On 12 October 1943, Cominron SIX, Cmdr. Richards, reported to the Area and took over command, with Cmdr. Messmer remaining on as Chief Staff Officer but retaining his Divisional Command. Upon the hospitalization of Cmdr. Richards on 12 February 1944, Cmdr. Messmer relieved as both Cominron SIX and CTG 81.4, but was relieved as Cominron SIX on 21 April. In November, Captain Plander, Cominron SEVEN, relieved as Commander Escort Sweeper Group, which Command was dissolved during late December 1944. The vessels under the control of CTG 81.4 numbered 98 by October 1943, and reached a peak of 110.

Most island bases of the Pacific had somewhat similar commands although usually smaller in scope. However, the Commanders were usually destroyer or destroyer-escort Division or Squadron Commanders, with only general knowledge of the needs of minesweepers. With no immediate minesweeping problems but faced with grave difficulties in finding escorts, they usually found no time in which to schedule minesweeping exercises and training suffered. In the Mediterranean, the needs of minesweepers were constantly in the minds of Cominron SIX and SEVEN and minesweeping was usually an immediate problem, as CTG 81.4 furnished the sweepers for the campaigns for Sicily, Italy and Southern France, which included the mopping up of mines along the West Coast of Italy and the South Coast of France.

#### 7. MINECRAFT WITH THE TWELFTH FLEET.

Although a few YMS's were already on duty with Com12thFlt., the bulk of those to be used in the invasion of Normandy began to arrive in southern England during May 1944,; as did Cominron SEVEN, Captain Plander, with nine 220' AM's, all but one of which were of his Squadron. May was largely spent in outfitting, organizing and training. With British sweepers requiring repairs and upkeep as a result of months and years of arduous sweeping, Cominron SEVEN assumed some of their routine sweeping duties off the South Coast during that month and succeeded in sweeping some acoustic mines. A few days prior to the invasion of Normandy of 6 June 1944, Cmdr. Allen arrived in southern England in the CHIMO (ACM 1) and was placed in command of the American YMS's of the invasion forces. As part of the overall minesweeping Task Group under the command of a British Naval Officer, Captain Plander's force of AM's was designated "A Squadron" and Cmdr. Allen's force



was named "Y Squadron". "A Squadron" continued to sweep off the French Coast until 25 July, while "Y Squadron" so operated until May 1945. On 25 July, with two AM's sunk and others damaged by shell fire, Captain Plander left France for the Mediterranean with the remnants of his force.

Note for Captain Allen: Your action report is available, but please supply any background material which might be of interest. Also, if you can, the name of the British Officer mentioned above.

### SECTION III

#### DEVELOPMENT OF THE PACIFIC COMMAND.

##### 8. LESSONS TO BE LEARNED.

There are very definite lessons to be learned from the development of the Minecraft Type Command and it is hoped that the dead cats can be brought to light. It is not desired to be critical of anyone, as all were feeling their way in developing that which was, to all practical purposes, a new art. It is fairly easy, in retrospect, to compress the experiences of four or more years into a few pages. It was far from easy to foresee what those experiences would be. It is believed safe to say that many major developments occurred only after the shoe began to pinch violently. In some cases, changes were months and even years late. Some did not become fully effective, nor was what is believed to have been the ultimately desirable organization entirely set up. If war be ever again forced upon us, it will be necessary to avoid as many growing pains as possible, although there always have been many and there always would be. A third time might not find us fortunate enough to have allies hold off the enemy while we stumble through the preparatory stages. The latter could probably be avoided by applying the lessons which have been placed before us, exercising due care to be more than merely ready to fight the previous war.

##### 9. THE ROOTS.

At the time of the Pearl Harbor attack, minecraft in the Pacific, other than small sweepers of the District Section Bases, were assigned to Train Squadron SIX, Captain Mark C. Bowman, USN, a subordinate command of Commander Base Force, Pacific Fleet, Vice Admiral Wm. L. Calhoun, USN, or to Minecraft, Battle Force, Pacific Fleet, Rear Admiral Wm. R. Furlong, USN. Mine laying was a function of CominBatFor whereas minesweeping for the Fleet was placed with Contrainron SIX. On 24 February 1942, when Base Force became Service Force, Pacific Fleet, Train Squadron SIX was changed in name to Squadron SIX, and shortly thereafter to Service Squadron SIX, in order to reduce the confusion between it and other type Squadrons bearing that number.

#### 10. COMPOSITION, LIFE AND DEMISE OF "MINECRAFT, BATTLE FORCE, PACIFIC FLEET."

Admiral Furlong had a force consisting of his flagship, the USS OGLALA (CM-4), which was later to be sunk during the attack but finally salvaged and served in the Philippine Campaign as a repair vessel, and 8 DM's of Mine Squadron ONE, of which the Admiral was Squadron Commander, as additional duty. Mine Squadron ONE (see pages 47-49) consisted of Mine Divisions ONE and TWO, the former being commanded by Commander J. F. Crowe, jr., USN, later relieved by Commander W. H. Hartt jr., USN, and the latter by Commander Ross P. Whitmarsh, USN. Additionally, the Admiral administered a mine school, located at Pearl Harbor.

After the attack, Admiral Furlong became Commandant of Pearl Harbor Navy Yard and, on 12 December 1941, the Chief-of-Staff, Captain Geo. D. Hull, USN, assumed the duties of Comin-BatFor, and of Cominron ONE and was confirmed in those positions on 13 February 1942.

The Mine Section Base of the Naval Ammunition Depot, at West Loch, Pearl Harbor, was under the jurisdiction of the Bureau of Ordnance. In January 1942, as the Mine Assembly Base, with Lt-Cmdr. R. T. Spofford, USN, as Officer-in-Charge, jurisdiction was taken over by CominBatFor and its facilities increased in order to supply the demand for mines to be laid in defensive fields. With his vessels absorbed by the Offshore Patrol, this base was the major interest of CominBatFor until his entire organization was combined with Trainron SIX, on 10 April 1942, and Captain Hull became acting Contrainron SIX and, later, confirmed in that position.

#### 11. ORIGINAL CONCEPTION OF TRAIN SQUADRON SIX.

By 1941, Base Force had expanded so greatly, became so unwieldy, that decentralization became necessary, which was effected during September.

Train Squadron SIX, of Base Force, under the command of Captain Bowman, was established on 1 October 1941, consisting of units and activities formerly portions of the direct command of Commander Base Force, Vice Admiral Calhoun. With a nominal flagship, which changed from time to time, Train Squadron SIX, Service Squadron SIX and finally the administrative Command of Commander Minecraft, Pacific Fleet, were essentially shore based at Pearl Harbor from the beginning. Train Squadron SIX was assigned the following responsibilities:

- (a) Establishment, support and security of advance bases.
- (b) Minesweeping
- (c) Screening for Fleet operations.
- (d) Services for gunnery training.



In the beginning, Comtrainron SIX was almost exclusively engaged in furnishing facilities for gunnery training to the Fleet. On 29 December, 1941, he was assigned administrative control of vessels in ordinary, consisting of the majority of the vessels damaged during the attack. The latter duties remained a burdensome detail until finally completed during the summer of 1944, although the burden diminished steadily as vessels were returned to service. Established as an agency for de-centralizing the tremendous load of ComBaseFor, Comtrainron SIX (Comservron SIX) was assigned duties, from time to time, more from the lack of a more suitable activity and with the idea of equalizing the work load, than from anything else. With the addition of training of landing craft units, Servron SIX appeared to take on the complexion of a group of Fleet Schools.

## 12. THE FOREST AND THE TREES.

As a matter of hind-sight, it is unfortunate that mine warfare in the Pacific developed from a parasitic growth. True, it later enveloped the whole tree but, it is believed, minesweeping particularly suffered from such an ancestry, and its effects were felt to the end. It is now clear that what was needed was a specialized Pacific wide mine warfare command from the first, cutting across fleet lines; concerned only with mining, minesweeping and degaussing. Such war time duties would keep any command extremely busy, but the need was not apparent for some time after the commencement of hostilities; nor was the ultimate entirely attained. The extent of mine warfare could not be foreseen and minesweeping, to a large extent, was contingent upon the development of the enemy's mine warfare.

Mining had not yet become a too complicated art and the only mines available were of the World War I model, which could, of course, blow one just as high as any type with a comparable charge. Peace time training for mining was predicated on the supposition that mine layers would accompany the Battle Force to advance areas. The losses suffered at Pearl Harbor precluded such movements, for the time being, even had there been in existence ample supporting craft of all kinds, which there were not.

Minecraft from new construction had not yet appeared and it was apparently felt that, with the few experienced personnel which had to be spread so thinly, the few minecraft did not warrant a specialized organization. There were no modern Fleet Sweepers and new-construction met with delay after delay. Although in January, 1942, CominBatFor expected Mindiv THREE in the "near future", the first of that Division of 220' AM's was not commissioned until October, 1942, and the fourth ship not until January, 1943. The modern "Oropesa" gear was available only in limited quantities, was not fully developed and its operations was understood by only a few. Lt-Cmdr. E.V. Raines, USN, operations officer for Captain Bowman, while Commanding Officer of a Bird Class AM, had learned something of the "Oropesa" gear by trial and error. No other officer on the Staffs of either organization had specific knowledge of such minesweeping until the reporting for duty, on 17 May, 1942, by Commander Kenneth C. Caldwell, USN, a recent graduate of Yorktown. Even so, Headquarters only derived limited benefits

from his knowledge as he returned to the Coast in June and stayed until the end of the year, for duty in connection with his Squadron, Squadron FIVE. Last but not least, long hours spent at daily routine are never conducive to constructive straight thinking.

13. ORIGINAL ASSIGNMENTS TO COMMANDER TRAIN SQUADRON SIX  
AND EARLY EMPLOYMENT.

Originally assigned to Train Squadron SIX were: USS RIGEL (ARB-1), superficially damaged at Pearl Harbor, as flagship and tender; USS UTAH, an obsolete battleship, as fleet anti-aircraft schoolship and mobile bombing target, lost during the Pearl Harbor attack, in fact the first casualty; Mine Squadron TWO, Captain Geo. F. Hussey, jr., USN, with Lt.-Cmdr. Robloy W. Clark, USN, as his Chief Staff Officer; Mine Squadron FOUR, which had no Squadron Commander and was administered direct; Mine Squadron FIVE, assigned but no vessels had yet reported, ultimately commanded by Commander Kenneth C. Caldwell, USN; Utility Wing, Commander John L. Murphy, USN, and later Lt. Cmdr. John E. Beck, USN, primarily for towing of target sleeves; Fleet Machine Gun School, at Paulea, Oahu; Anti-aircraft School based on the UTAH; Fleet Camera Party; and the Target Repair Base, at the Navy Yard Coal Dock, later moving to Bishop's Point, Oahu.

Mine Squadron TWO consisted of the 13 old DMS's of Mindivs FOUR, FIVE and SIX (see page 13). Mindivs TEN and ELEVEN made up Minron FOUR, with Mindiv TWELVE, of four 220' AM's then building, also assigned, but this was changed prior to any unit reporting for duty. Mindivs TEN and ELEVEN each consisted of four World War-I Bird Class sweepers, some of which had swept the North Sea Barrage. Mine Squadron FIVE was to consist of ten 220' AM's between Mindivs THIRTEEN and FOURTEEN and, also, of six 173' AM's in Mindiv FIFTEEN.

During 1941, after the establishment of the Section Base under the Commandant of the 14th Naval District, routine sweeping in the Oahu Area was generally taken over from the Bird Class Sweeps by that activity, using AM's, except that one Bird Class AM continued daily checks of Honolulu Harbor and approaches. The Bird Class AM's were given an odd sweeping job now and then but, usually, their work was towing targets, towing to island bases drill mine and drill torpedo recovery, salvage work, escort duty, and the like. Some laid defensive mine fields after Pearl Harbor, and, immediately after the attack, all operatable and present were actively engaged in fighting fires, salvage work and check sweeping. Generally they were used as sea-going tugs and were moderately well equipped for such duties, whereas they were but mediocre as modern mine-sweepers and were not equipped to sweep influence mines. Finally, on 1 June 1942, their designation was changed to auxiliary tugs (AT), as were those of this type in the Atlantic, and they were transferred to Service Squadron TWO. Mine Squadron FOUR then ceased to exist, for the time being, and this left the Pacific Fleet without Fleet Sweepers.



On 7 December 1941, Cominron TWO was at sea with Mindivs FIVE and SIX, and two AM's were absent on detached duties. The remaining vessels were in or near Pearl Harbor. The destroyer type minecraft immediately joined the destroyers of the Offshore Patrol and, on 11 December, Cominron TWO was made Commander Offshore Patrol (CTG 4.5), under the direction of whom was shortly later known as Commander Hawaiian Sea Frontier. The principal forces assigned to this duty were Minrons ONE and TWO, practically all there was in the way of minecraft in the Pacific Fleet; thus a large portion of the details of operational control of CominBatFor and Comtrainron SIX were assumed by Cominron TWO, Captain Hussey. During July 1942, half of each of Mindivs FOUR, FIVE and SIX, of Minron TWO, were assigned to the Alaskan Command and the other half to the South Pacific Command, under the immediate command of Cominron TWO, Cdr. W. H. Hartt, jr., USN, to 14 December 1942, Cdr. S. Leith, USN, to 22 August 1943, then Cdr. W. R. Loud, USN. Except as vessels were engaged in laying defensive mine fields, towing high speed targets, overhaul, and odd tasks, Minron ONE continued in the Offshore Patrol until late 1942, when patrol craft became available and took over.

#### 14. AMALGAMATION OF PACIFIC MINE WARFARE ACTIVITIES AND EARLY CHANGES IN COMMAND.

Effective on 10 April 1942, the new Pacific Fleet Organization abolishing combatant "Force" commands, eliminated the command of Minecraft, Battle Force, and amalgamated it with Squadron SIX, but Captain Hull remained Cominron ONE, for the time being. At this time, Captain Bowman was in the Southwest Pacific on duty, so Captain Hull became acting Commander Squadron SIX. Leaving behind his Material Officer, Lt. Cdr. Hilan Ebert, USN, later killed in action while serving as Chief Engineer of the SALT LAKE CITY, Captain Bowman had taken the major portion of his small staff with him. Therefore, Captain Hull brought his small staff with him, on an interim basis. On 7 May 1942, Captain Bowman was ordered as Commander Subordinate Command, Service Force, Auckland, New Zealand; Captain Hull was officially confirmed as Comservron SIX, and Captain Ross P. Whitmarsh, USN, became acting Cominron ONE and was confirmed in that position in July.

From 1 September to 22 November 1942, Captain Hull was within the Continental Limits on temporary duty and Commander Service Force, assumed additional duties as Comservron SIX, except that Captain Bowman temporarily took over again on 5 November for about three weeks. From 28 November 1942, to 13 August 1943, Captain Hull, except for the three month period, April, May and June, was wither absent on temporary duty or a patient in the hospital most of the time and, during these absences, Captain Whitmarsh, Cominron ONE, acted in his stead. Although not confirmed until it became apparent Captain Hull would be retired and not return, Captain Whitmarsh was in full command from 13 August 1943, to 15 October 1944, when the organization became Minecraft, Pacific Fleet.

#### 15. SERVICE SQUADRON SIX POINTS UP TOWARDS MINE WARFARE.

Originally, Comtrainron SIX (Comservron SIX) had been charged with "establishment, support, and security of advance bases". However, the means for accomplishing these tasks largely remained with ComBaseFor (ComservPac), and such actual services by Comservron SIX (CominPac) were limited in extent. Mostly, the latter limited his base activities to mine fields, degaussing, nets, mine sweep gear depots, mine assembly depots and the Mine Modification Unit base on Tinian. Defensive mine fields were planned and laid by Comservron SIX, but none were desirable by the time that MinPac came into being, as the offensive was in full swing, and CominPac laid none. Comservron SIX (CominPac) planned and, after approval by ComservPac, laid degaussing ranges and nets and maintained them until the particular island command was set up, when the Island Commander assumed responsibility. Recommendations as to locations and sizes of mine sweep gear depots were made to CNO, who set them up under a particular Island Commander. Comservron SIX (CominPac) was responsible for the assembly and preparation of surface and aircraft laid mines. As such, he was responsible for the training of personnel engaged in preparing mines for laying, including their modification. Comservron SIX (CominPac) planned bases for Mine Assembly Depots and the Depots for the Mine Modification Unit on Tinian.

Likewise, the means for "screening for fleet operations" was largely held by others and "mobile degaussing" had entered the picture. Therefore, on 9 October 1942, recognizing changed conditions, ComservPac expressed the general mission of Comservron SIX as:

- (a) Minesweeping and mine planting;
- (b) Services for gunnery training;
- (c) Mobile degaussing.

Actually, this directive changed little but it did recognize that the organization was taking a definite trend toward mine warfare. It still left the deadweight of "services for gunnery training" and the "ships in ordinary" lodged with the organization.

#### 16. PREPARATIONS FOR OFFENSIVE MINING AND MINE DISPOSAL.

Earlier war activities of this Command in regards to mining were solely with moored mines of the World War I type, and fields laid were mostly defensive in character.

It was not until 16 March 1943, that a mining officer, Lt.Cdr. E. A. Johnson, USNR, and an assistant mining officer, Lt.(jg) W. F. Wallace, USNR, both trained as specialists in influence type mines, reported to the Staff. Then commenced a program of test, experiment and training in the use of influence mines, which proved of great value. An additional assistant mining officer, Lt.(jg) T. L. Page, USNR, followed in May. The Mine Assembly Base conducted a school, and a model advance base was installed at Brown's Camp, Oahu, in order to practice assembly methods and living conditions as they would be found to be in advanced areas. From these activities developed the Mine Modification Unit and, also, Mobile Explosive Investigation Unit No. FOUR, which was often called "bomb



disposal unit" of "Mine disposal unit". MEIU #4, the final development of earlier efforts, first passed to the control of Conservron SIX on 25 July, 1944. This consolidated all Navy disposal personnel in the Pacific, except members of MEIU #1 which were with the Seventh Fleet, and tenders were sent out to areas as needed, not only to dispose of any unexploded ordnance materials but, also, to analyze captured enemy ordnance.

Lt. Cmdr. E. A. Johnson, USNR,

mining officer on the Staff of Conservron SIX, remained on with CominPac as the expert in influence mines, until after the cessation of hostilities, although loaned to the XXIst. Bomber Command for the aerial mine Blockade of Japan.

On 27 August 1943, Conservron SIX was assigned the duties of setting up advance mine bases, and to care for, prepare and issue all aircraft laid mines. The personnel for such bases were normally graduates of the NMWS, Yorktown, Va., and also from the U.S. Naval Mine Disposal School, Washington Navy Yard, Washington, D.C., who were given their final training at the West Loch (Pearl Harbor) Mine Assembly Base and at Brown's Camp.

#### 17. NETS AND BOOMS.

On 1 March 1944, Conservron SIX took over all net vessels of the Pacific Ocean Areas, except those allotted to Com 14th. N.D., which included large net cargo vessels (AKN) and net tenders (AN). Originally, there were 3 AKN's and 14 AN's, with more to follow. A request to form these into a Squadron was disapproved, but the late Lt. Cmdr. R. L. Alaux, USNR, killed in action at Okinawa, with prior service as Commanding Officer of an AN, reported to the Staff in June, 1944, as Net and Boom Officer.

Net vessels were allotted to the operational control of the various Island Commanders, as equitably as possible, for the maintenance of nets already laid. For invasions, plans were made and submitted to Commander Service Force for installation of nets, and the latter furnished the materials. However, Conservron SIX (CominPac) transported the nets, in AKN's and AN's, to the assault area, laid and maintained them until the new island command was set up. Sufficient AN's were then peeled off for net maintenance by the Island Commander.

Even such limited cognizance of nets and booms was a hold over from the original idea that Conservron SIX was to be the agent for establishing advance bases. It is considered that such responsibilities should not be lodged with the Mine Force.

#### 18. CHANGING COMPLEXION OF SERVICE SQUADRON SIX.

During 1942 and most of 1943, the activities of Conservron SIX were largely in connection with supporting of the surface mine laying operations in the Pacific and with the co-ordinating of a number of shore based activities, each headed by an officer and

collectively described as "actually functioning as commanding officers of their activities". In fact, a loosely knit organization seems to have been preferred to a mincraft type command. Although new construction began to appear late in 1942, operational and administrative control vessels was often lodged elsewhere. Thus, services were largely limited to those vessels passing through Pearl. From the very nature of the Command, with many shore establishments and with an increasingly large numbers of small vessels operating in distant and scattered areas, control was necessarily decentralized. To perform his duties Conservron SIX had a Staff of four officers, later enlarged to six with the addition of a mining officer and a degaussing officer.

The hospitalization of Captain Hull and the elevation to the Command of Captain Whitmarsh happened to occur on the eve of a feverish expansion of Servron SIX. It was not until minesweeping forces started to assemble for the push across the Central Pacific, commencing with Tarawa, 20 November 1943, and the receipt of administrative control of YMS's and AN's, early in March, 1944, that experience with large numbers of vessels was had, the Staff began to balloon in size to care for the added responsibilities, and the true nature of mincraft operations began to emerge. In December 1943, Captain L. A. Reinken, USN, reported as Chief Staff Officer.

Early October 1944, at Ulithi, saw the last of the defensive surface laid minfields. During 1943 a few aircraft laid mines were dropped, principally by planes based in Australia, India and the Solomons. However, it was 1944, that aerial mining got off to a real start, reaching a crescendo with the mine blockades of Korea and Japan in 1945. Of these aerial mining ventures, Conservron SIX (CominPac) was intimately connected with the carrier mining strikes against the Palau's on 30-31 March 1944, the routine strikes by Fleet Air Wing ONE and of the Marine Strike Command of ComAir-Solomons, and the routine strikes of the Army's XXIst. Bomber Command from Tinian.

Although some were still under the full control of Commander Seventh Fleet and of Commander North Pacific Forces and Area, and some were under the operational control of others, on 15 October, 1944, of the three hundred odd ships of Service Squadron SIX there were at least 4 heavy minelayers (CM); 4 net carriers (AKN); 8 destroyer (old) minelayers (DM); 16 destroyer (old) minesweepers (DMS); 58 fleet minesweepers (220' and 180' AM); 134 yard motor minesweepers (YMS); 34 net tenders (AN); 1 mine recovery vessel (ACM); and 5 mobile degaussing vessels (YDG); with many more vessels to follow. The time was long past for the setting up of a type command. Probably two reasons had mitigated against such a step earlier: first, the previous nature of the war when vessels were not a direct burden to the central command, for a long period; second, many officers were heard to express a widely felt opinion "the Japanese are not using mines". Well, the vessels became a burden with a rush and the assault against Palau in September and October of 1944 dispelled the idea that the Japanese used but few mines.



19. ESTABLISHMENT OF THE TYPE COMMAND: COMMANDER MINECRAFT,  
PACIFIC FLEET.

As we have seen, Vice Admiral Alex Sharp, USN, (he preferring the diminutive, rather than the longer handle of Alexander), while a Captain and later while/Rear Admiral, had much to do with the building up of a minesweeping fleet from nothing. As Commander Service Force, Atlantic Fleet, Vice Admiral Sharp still retained his interest in mining and minesweeping, was responsible for the support of Atlantic minecraft and one of his subordinate commands, Service Squadron FIVE, controlled the minecraft of the Atlantic and Mediterranean. Hearing rumors that the time was ripe for an independent type command in the Pacific, Admiral Sharp made a request to the Commander-in-Chief United States Fleet that he be appointed to the new Command, although it meant reverting to the rank of Rear Admiral. The request was approved and, accordingly. Commander Minecraft, Pacific Fleet, was set up under CinCPac on 15 October 1944, the former Staff of Comservron SIX was taken over, Captain Whitmarsh became Chief of Staff and Captain Reinken became Assistant Chief of Staff.

Based on the precedent set by Commander Amphibious Force, Pacific Fleet, on 7 January 1945, CominPac set up the Administrative Command of Commander Minecraft, Pacific Fleet, under the command of Captain I. A. Reinken, USN, with headquarters at Pearl Harbor, to whom were delegated many and wide duties, all aimed at the support of the mine forces afloat. This was forcibly expressed by placards all over the place, reading: "The only reason for this organization is to support the vessels afloat", and was an effort to overcome the very human tendency for one engrossed in the pressing details of his own task to subconsciously view that task as the end in itself. One must continuously bear in mind that the only reason for a navy is to place effective mobile guns and other ordnance weapons on, under or over the high seas; or, on or over enemy held or threatened territory; which, in turn, means ships or aircraft to carry or support these weapons. Likewise, the only reason for a naval establishment on shore is to support these ships and aircraft. The above principle was not fully appreciated by all shore based personnel. That principle will still hold if, at some future date, navies take to the air exclusively, or nearly so.

There cannot be detailed here all the multifarious duties of either Command nor the rapid changes in each, nor even the rapid changes in vessels of the Command. However, events do not just happen, they are caused to happen; and it is necessary to indicate how operations were supported and where that support fell short of what could have been desired.

It is unfortunate that such rapid shifts in organization could not have occurred a few months earlier, in order to allow a more orderly growth and to give a period of "shake-down" to the new Commands; rather than during a period when both Commands were in the throes of planning and staging for Iwo Jima and Okinawa. As it was, the Admiral himself took the field only two weeks after

the setting up of ComAdCominPac, leaving Pearl on 22 January 1945, and only returned in person but once during the remainder of hostilities and, then only for a few days.

In June 1945, Admiral Sharp wrote: "There was considerable difficulty in arriving at the composition of an adequate staff. This was because of initial lack of experience by CominPac of the Mincraft Operational Staff personnel needs. It had to be guessed and our guess was not in all respects correct." Not only was there difficulty in arriving at staff composition but there was difficulty in filling the billets believed necessary. Had there been in existence a strong Divisional organization, the lack of which was the great handicap to mine warfare operations, there would not only have been more talent with experience available, but other persons with the personal qualifications desired would not have been submerged in a sea of names. As it was, ComAdCominPac was handicapped by being robbed of greatly needed personnel at a time when his organization was in the formative stage. In fact, ComAdCominPac continued to lose personnel, as he developed them, to the Operational Command at a discouraging rate. Also, Squadron Commanders, members of their Staffs, and others were frequently called to the Staff on temporary duty when they well could have been used elsewhere.

## 20. COMPOSITION AND FUNCTIONING OF THE OPERATIONAL STAFF: STAFF OF COMINPAC.

Basically, the Staff consisted of four sections; Administration and Personnel; Operations and Plans; Engineering and Logistics; and Communications. After the Mines and Countermeasures Technical Unit (MACTU) was established after hostilities ended, it became what in effect was a temporary fifth section after it moved on board ship.

ADMINISTRATION AND PERSONNEL: Headed up by the Flag Secretary, Lt. R. H. Field, USNR, until June/45, when he was relieved by Lt-Comdr. J. K. Dougherty, USNR, who had been War Plans Officer for ComAd-CominPac.

OPERATIONS AND PLANS: Headed up by Captain Robley W. Clark, USN, killed in action in the TERROR on 1 May 1945. Captain Ralph S. Moore, USNR, was in Pearl on his way back to the Continental Limits and was called back to act as Operations Officer until the arrival early in June of Captain Paul C. Wirtz, USN, who had been Conservron FIVE since he had been relieved in September 1944, as Cominron TWELVE, by Captain Freiburghouse, formerly Officer-in-Charge of Fleet Mine Readiness Division of the Staff of Conservron SIX. This section was subdivided into two Divisions: MINESWEEPING, PLANNING and the direct OPERATIONAL GROUP.

MINESWEEPING PLANNING: Headed up by the Minesweeping Officer, Captain Ralph Moore, this division originally had several assistants but these were evacuated in the TERROR and but one was added, late in June, until late in September and later. Early in June, Captain



Moore returned to the Continental Limits on temporary duty and on leave, and did not return and resume his duties until the end of August. In June, his duties were taken over by Cominron SIX, Captain A. M. Robinson, USNR, until the latter went to Manila, in mid-July, to aid in planning the minesweeping for the invasion of Kyushu, being relieved by the Assistant Minesweeping Officer, Cdr. McEathron. On 30 November 1945, Captain Moore was promoted to Commodore and detached, being relieved by Captain Freiburghouse.

**OPERATIONAL GROUP:** This group was headed up by the Assistant Operation's Officer, a billet first filled in June, Cdr. C. M. Fligg, USNR. This group had a varying number of watch officers, of whom Lt-Cmdr. R. C. Biles, USNR, a prospective YMS Squadron Commander, was killed in action in the TERROR. These watch officers, usually three in number, changed with rapidity, as they were all on temporary duty, and this was an annoying handicap. Additionally, this group had six offices held as follows:

**GUNNERY AND TRAINING:** Lt. A. H. Howett, USNR, until June/45, then Lt-Cmdr. G. C. Ellerton, USN.

**NETS AND BOOMS:** Lt-Cmdr. R. L. Aleux, USNR, killed in action in the TERROR on 1 May/45, then Lt-Cmdr. J. F. Eddy, USNR, who had been sent out as a Net Tender Squadron Commander.

**MINING AND INTELLIGENCE:** Lt. T. L. Page, USNR, sent out from the Staff of ComAdCominPac. First added in May/45, this office became more and more essential as the complexion of the Campaign changed and probably should have been set up much sooner. While general mine intelligence for the entire Pacific was held at JICPOA, Pearl, this could not take the place of a local organization.

**DEGAUSSING OFFICER:** Lt. E. J. Taylor, USNR, killed in action in the TERROR on 1 May/45, and was not filled again until August and then by Lt-Cmdr. F. E. Legg, USNR.

**AEROGRAPHER:** Not established until June/45 and then filled by Lt. E. H. Rodgers, USNR.

**COMBAT INTELLIGENCE CENTER (CIC):** The details of this activity were lodged with the ship's company.

**ENGINEERING AND LOGISTICS SECTION:** Headed up by Lt. H. S. Morton, USNR, until April/45, when Captain W. E. Haycock, USNR, arrived and took over and Lt. Morton became the Assistant. In August, Captain Haycock was relieved by Captain Raymond J. Moore, USN.

This section was subdivided into three divisions: The INSPECTING STAFF; MEDICAL OFFICER and SUPPLY AND LOGISTICS.

**INSPECTING STAFF:** Consisted of a varying and changing number of officers, never exceeding six, one of whom, Chief Boatswain C. A. McMahon, USN, was wounded in action in the TERROR.

MEDICAL OFFICER: Lt-Cmdr. H. D. Warden (MC), USN, wounded in action in the TERROR but stayed on duty until relieved in June by Lt-Cmdr. J. J. Smith (MC), USN.

SUPPLY AND LOGISTICS: Lt. G. S. Owens (SC), USN, killed in action in the TERROR on 1 May/45, Chief Pay Clerk Chas. Potty jr., USN, then acted until July, when Lt. H. M. Burgwald jr., USNR, came out and took over until October. Lt-Cmdr. R. D. Davis, USNR, took over in October but was loaned to the Commander of the Okinawa Group for a good portion of the time thereafter.

COMMUNICATIONS: Lt-Cmdr. C. N. Mayo, USNR, until August/45, relieved by Lt-Cmdr. J. G. Roper, jr., USNR, until 1 December 1945, then Lt-Cmdr. E. E. Ball jr., USNR.

It is appreciated that the assault minesweep commander must be under the command of the amphibious commander, and the desire of CominPac to be designated a force commander did not stem from a grasping for either power or position. During the assault phase at Okinawa, enough group numbers were assigned to give one to CominPac and one to each of the sweep group commanders. Later on there was a period when CominPac was not yet a force commander and had but one group number, for himself. This made units of groups, leaving the units no place to go, thus complicating communications and operations orders. On a smaller scale, this disadvantage occurred in earlier operations, also.

MACTU: Cmdr. R. B. Wright, USNR, as Officer-in-charge; with Cmdr. W. C. Michels, USNR, as the Mine Assistant; and, Cmdr. C. G. McIlwraith, USNR, as the Countermeasures Assistant.

Prior to the cessation of hostilities, Admiral Sharp had requested a deputy commander, in order that he might be free to leave on urgent minesweeping planning and other matters. Captain Andrew G. Shepard, USN, was assigned and arrived in August, but his designation as "deputy" was disapproved. After Admiral Struble took over at the end of August, Captain Shepard was made Plans Officer and coordinated the activities of the Staff as they affected minesweeping. In March/46, Captain Shepard relieved Captain Whitmarsh as Chief of Staff and became CominPac in May 1946, when Admiral Struble became ComPhibsPac.

On 30 August 1945, Rear Admiral Arthur D. Strubble, USN, who had been put out of business as Commander Amphibious Group NINE when the Japanese threw in the towel, relieved Admiral Sharp, who returned to the Continental Limits and was retired the following Spring for reasons of health. That ten and a half months had taken its toll. It had been a terrific strain, more from efforts to keep the ships operating and on the line, under the most difficult of circumstances with nothing but shortages; rather than from enemy action, although that had not been light.

There were two factors which had great effect upon staff operations: first, the severe damage to the TERROR at 0401 on 1 May 1945; second, the initial designation of her as flagship.



The TERROR was hit, during darkness, by an enemy bomber carrying bombs and much of the upper decks amidships was entirely gutted and destroyed. Of the Staff, five officers and five men were killed, two officers and twenty-four men were wounded, while the ship, herself, lost thirty-six officers and men killed and ninety-seven wounded. Amongst other damage, the Flag Office was totally destroyed, together with all records therein, as well as those in the staterooms of the Operation's Officer and of the Minesweeping Officer. Believing in relieving the watch on time, Cmdr. Sima, Cominron FIVE, had left the latter stateroom a few minutes earlier and was thus saved. Not only was the heavy loss of personnel, who had been building up experience, severely felt; but many of the unwounded were necessarily evacuated in the TERROR because there simply was not room to squeeze them into the Coast Guard Cutter BIBB (AGC 31), Cmdr. H.T. Diehl, USCG, a small vessel for a small command, although with excellent radio facilities. This left all departments extremely short handed, clerical and other help was so short that much of the lesser of the important work did not receive the attention that it should have, and not so critical received none at all. Poor off as the TERROR was, desk and file space was so critical on the BIBB that offices and files had to be carried in and under one's hat, of necessity.

The TERROR was designated as flagship as no other vessel was available while she was, with no further use seen for her services as a minelayer. Except for CW radio, she had no facilities as a flagship, nor could they satisfactorily be built into her due to her basic design, nor was time or industrial effort available. Staff functioning was severely limited by lack of adequate living quarters and messing facilities, office space, operation's room, means for reproduction, files, voice circuits, boats and medical facilities, to mention a few. She did have a pilot house - about three times as big as could be conveniently used. Even after alterations were effected, concurrently with battle damage repairs, conditions were not greatly improved, although staterooms were added and office spaces enlarged. With some advantages, these alterations concentrated all flag office spaces on the mine deck, but they were as remote as it was possible to place them from the Operation's Room, such as it was, and the ship's spaces were one deck higher. After a short period on shore at Okinawa, MACTU was set up on the mine deck during October 1945, and the TERROR went totally out of business as a quasi tender for minecraft, duties which she had performed well prior to her damage. All other "lacks" remained.

Sent to rear areas in May, the TERROR returned to Okinawa in September, just in time to lose a propeller in the typhoon of September 15th., while Admiral Struble was absent on an inspection trip to Japan. In November/45, the PANAMINT (AGC 13) Captain W.B. Ammon, USN, was temporarily assigned as flagship, while the TERROR returned to Pearl for repairs, and remained as such until Admiral Struble and his staff left Japan on 7

March, 1946. With enlarged working spaces and more help, staff conditions somewhat improved after the return of the *TERROR* and greatly improved after the shift to the *PANAMINT*. However, the latter vessel was obtained too late to be of great value and was more a matter of convenience by that time. The making up and reproduction of the *MACTU* sweeping manual, for instance, had largely been completed under very difficult conditions and with makeshift reproduction facilities.

Although not inspired by the case of the *TERROR*, as she was hit after more than a month at the objective, it might be well to inject the thought that possibly the minesweeping flagship should have arrived with the transports, rather than be the only large fat target in the area, and not strongly gunned at that. It would have been less risk of command disruption for the Admiral, with the Operations Officer, the Minesweeping Officer and a few selected others, to have arrived initially in a *DM*, for instance. Also, perhaps the *TERROR* was the particular target because the same vessel of unusual lines showed up day after day in the same position in enemy recco photographs. Frequent shifting of berth might have prevented that, although it is supposed that some vessel would have been hit on that occasion.

Although as time went on conditions improved, there were two sections of the Staff that had fundamental weaknesses, which plagued them to the end.

ADMINISTRATION AND PERSONNEL was set up to handle the very necessary matters in the field, with *AdCominPac* handling the remainder, and just too much material poured in. This was aggravated by rapid demobilization, in that quantities of emergency cases rolled in, with some the "Emergency" being mainly a case of itchy feet, although *AdCominPac* handled the vast majority. Due to wide Physical separation, these cases could hardly have been handled otherwise.

Too many and too long winded reports were received on some subjects, and not enough on others. Relatively few learned to submit all the information in the fewest possible words and in the simplest form. The picture of the war will probably always have its distorted sections, because some submitted nothing and others drowned pertinent facts in a sea of words. Many reports needed for historical purposes should have been sent direct, with perhaps in some cases a copy to *CominPac*.

*CNO* needed detailed reports on mines swept and published a form which could be used for either influence or moored mines. *CominPac* was interested in the details of each and every influence mine swept but, in an established moored field, was only interested in the plot of mines swept submitted by the Group or Unit Commander, and the individual ship's reports merely clogged the wheels of progress. Some ships, bless them, reproduced only those parts of the form which applied to the type of mine swept,



which made for easier reading and assimilation. Some made one report for all mines swept in a particular field, others reproduced the form word for word and submitted a report for each mine. With some vessels sweeping over four hundred mines each, the useless endorsements piled up.

The Roster of Officers was one form report needed but not submitted by all, nor were all religious in the matter of submitting reports of changes of command. Some vessels, Division Commanders and Squadron Commanders failed to submit a war diary, the fundamental historical document.

When CominPac took over, there were slightly over three hundred ships of a wide variety belonging to the Command. At the end of hostilities, there were five hundred and six vessels, with sixty-seven more assigned which had not yet reported, representing in the order of three thousand officers and thirty thousand men afloat. True, control was rather loosely held in some cases, such as those with battle damage and undergoing repairs in East and West Coast Ship Yards. However, after hostilities ceased, many more supporting and mine disposal vessels were obtained and the peak showed close to five hundred vessels, under the control of CominPac, present in far eastern waters, principally Japan. It can be seen that, when dealing with such numbers, the few inspectors of the ENGINEERING AND LOGISTICS SECTION could hope to no more than scratch the surface and accomplish no preventative medicine. More often the Chief of Section was the referee in bidding for the few diesel spares available and could only inspect those with the worst derangements. Also, from the 1st. of May until the TERROR's return in the middle of September, the Chief of the Section was housed in a vessel remote from the main Staff in the BIBB, due to lack of room, and with no boat available to his inspectors. Here, again, the need for a Division Engineer is the Task Group Commanders of the various minesweeping areas, but their vessels were often in the order of one hundred, and more often than not they had no diesel personnel or, if they did, perhaps one or two. Also true, those vessels with engineers who knew their diesels best and had a high procurement I.Q. had fewer troubles, but they had them; and demobilization meant less and less of those qualities. No doubt, the few steam driven plants had their troubles also, but repairs were less specialized, there being destroyer type tenders available, and they were more likely to have a few personnel who knew all the answers, between them.

At first, a supply officer was considered not necessary but this opinion was soon changed. As a matter of fact, the lack of a strong supply system was the greatest of handicaps. The tragic death of Lt. Owens caused the loss of much of the experience that had been gained and the loss of the files was complete. It is not known just what was in the files when they were destroyed, but there were no records from then on.

The normal supplies and repairs were handled in routine manner by COMSERVPAC, except for repairs made by the MONA ISLAND and a few other exceptions; but minesweeping was a specialized business by somewhat specialized vessels. Engineering needs and minesweep gear needs were worked out by ComAdCominPac and the bill presented to COMSERVPAC. Where the system fell down after the actual manufacture was between the docks of San Francisco and actual delivery in the forward area, if delivery were ever made. Except for deliveries made in COMINPAC's vessels and some surface and air shipments of special gear after the surrender, each shipment came with a surprise as complete as that of a Christmas package. There can be little doubt that the SUPPLY AND LOGISTICS Division should have had an officer with diesel experience and one with minesweeping experience.

The Supply Officer was mainly concerned in obtaining assignments for water, food, general stores, small stores and ship's service supplies, when any of these were available, and oil; leaving freight and spare parts very much up in the air. Additionally, he was housed in a third vessel, during the absence of the TERROR, without a boat, remote from his Chief of Section and remote from the main Staff.

Except for eschelon shipments to the shore based minesweep depots and some special surface and air shipments after the surrender, minesweep gear was sent forward in vessels of COMINPAC. Minesweeping gear in the advanced area was controlled by the Minesweeping Division of the Operations Section and not by the Logistics Division, as it required knowledge of the gear and experience in operating needs, none of which anyone in the latter Division had. Came the towel, and it became a question of simultaneous support of four large sweep groups in Japanese waters. Towards the end of September, 1945, and until relieved on the 1st. of February by Cmdr. G.S. Ashley, USNR, Cmdr. McEathron was given the full time job of supporting those forward groups with gear, trying to outguess their needs, duties in which he had previously dabbled with his left hand. No one ever just needed an item, it was always "urgently" needed. Such urgent requests are always a gauge as to the success of anticipating needs.

Events moved with rapidity. Although the almost continuous operation of minecraft, except when individual vessels were inoperable, commenced with the staging for Iwo Jima in February, 1945, what we will call the Minecraft Campaign of the Far East started on 10 March, 1945, when the first units left for Okinawa via Leyte. That Campaign can be considered ended in early March of 1946, although the first sweepers commenced to straggle home during the latter part of December, and a few sweepers remained on for mopping up, or for use as needs arose. That solid year of almost continuous sweeping wore out ships and personnel as they completed the largest minesweeping effort in history, with many small vessels having not a man set foot on the beach for six to nine months on end; and, when they did go, they received two cans of beer. As it affected logistics, there was one fundamental difference between this



and previous campaigns. Previously, the assault sweepers moved in, swept, and then the majority retired; leaving the local Commander a few sweepers for routine checking, mopping up and other duties. It was a snappy affair of not too long duration, but the Far East Campaign was different. As has been said of Clan Campbell, minecraft came and they came to stay; with only individual vessels retiring for repairs, usually battle damage repairs but sometimes in search of spare parts.

Although Minecraft was over the hump in both sweeping and logistics by December, the minecraft organization for that hectic year has been variously described as "a rat race", in a "constant state of flutter" and "one series of crises, varying from one to twelve a day". Such phrases were not far from being descriptive, with one thing and another, such as: unexpected sweeping activities outside of the general plan, often inaugurated by someone who did not realize the extensive effort required and, in two cases at least, the swept areas were not used after completion; water shortage, "like the poor, always with us"; acid and acid cleaning sets to clean distillers; food, one group of YMS's left for Japan with a four days supply; ship's service supplies, sweepers being a special breed were evidently not expected to brush their teeth or wash; spare parts and freight, problems never solved; movies, only 35 men on a YMS, they had no real need for a projector and, besides, they saw a movie in San Francisco back in 1942; oil, well a little water in it would do no more harm than to burn out the injector tips; small stores, it was summer, they did not need socks; sweep gear; burned up so fast that there was usually at least one critical item; typhoons; demobilization; enemy action, hardly existed after the end of June; and, with all the other troubles, not much time was left to worry too much about whether a mine could lift one ten feet or a hundred.

MACTU: It was known that the Germans had given the Japanese some information on influence firing devices for mines, and the Japanese could have developed some of their own. As it turned out, probably because of a harrassed and disintegrating industrial empire, the Japanese did not place these mechanisms into production, but we did not know this to be a fact, although it was believed that production could not be great. The operating personnel were busy with their own affairs, were remote from specific developments and knew of them mostly in general terms, although they studied what little was published about countermeasures. They were experts in the use, or development for use, of countermeasures but not in originating them nor in analyzing mine firing mechanisms.

In preparation for any "delightful" surprise which the enemy might inaugurate during the prospective invasion of Kyushu, so that countermeasures could be developed on the spot and thus not delay the invasion, Admiral Sharp had requested that a unit of mining and countermeasures experts be set up in the forward area with representatives in the invasion sweep groups and a shore based enemy ordnance analysis group on Okinawa. Such a

plan was approved and a group was assembled in Washington from the Bureau of Ordnance, Bureau of Ships, NMWTS Solomon's Island from the Naval Ordnance Testing Laboratory. The Officer-in-Charge, Cmdr. Wright, was from BuShips, as was Cmdr. McIlwraith, while Cmdr. Michels was from BuOrd. With the Japanese surrender came the immediate problem of our own mines, and it became the influence mine problem. The group immediately started out by air, stopping at CincPac Headquarters at Guam to confer with CincPac's Staff and in particular with Captain Tom B. Hill, USN, under whose strategical conception the mines had been laid and with Cmdr. E.A. Johnson, USNR. Here, they ordered large quantities of special gear for our own fields sent out by air and surface, which was not all used, it is true, but at that time no one could say just how operations would develop. The chance could not be taken that efforts would fail due to lack of special gear. The Mine Modification Unit on Tinian was closed and sailed for Okinawa, was inactivated and became an integral part of MACTU.

Admiral Struble had been an assault amphibious commander at Normandy and for the length and breadth of the Philippine Campaign, experience which included minesweeping as well as all other phases of such assaults and was thoroughly familiar with the risk element. His policy was that when hostilities ceased he was no longer justified in submitting minesweepers to any risk which was avoidable, and that risk to other types must be reduced to as near zero as it was humanly possible to do so. During hostilities one must either accept calculated risk or end up fighting on your own soil, and lose the war. As a result of his policy, only one minesweeper, the MINIVET, was mined and sunk. One Navy cargo vessel, the USS BRIDGE, was mined, not sunk, but she was in unswept waters. The ironical twist to that mining was that a Task Unit of AM's was to arrive the next day to work on that particular field. However, many Japanese vessels were mined and sunk during the post hostilities period, as illustrated by the classic despatch: "Japanese fishing vessel swept mine X Vessel sank". The Admiral's further policies were for our sweepers to clear those main ports of Korea and Japan needed for our occupation forces; to clear the ports of China, as these beyond the capabilities of the Chinese; to clear the large East China Sea and Yellow Sea open sea moored fields and the moored fields around Japan and Formosa, which would hamper our merchant and naval shipping and which were beyond the capabilities of the crude methods of the Japanese; to leave other Japanese ports and out of the way fields for the Japanese to clear if they wished to do so for their own benefit; and, lastly, no U.S. or Allied vessel could use Japanese waters until they had been checked by U.S. or Allied sweepers. This latter stand was taken not because the Japanese ever gave any indication of lack of faith but their methods were not reliable, and often dangerous to themselves and others.

It is of interest to note in passing that the bushido spirit of the bushido boys died with hostilities. Some of



the Japanese sweepers were equipped with our size four "O" gear (YMS size), were instructed in its use and their vessels equipped with Japanese winches to handle it, as their method had previously been one of exclusive hand labor and our gear could hardly be used in that manner. It was noted time and again that the Japanese minesweepers wanted no part of their own fields and it was with difficulty that they were persuaded to use echelon formation, rather than column, and to not continue to sweep the identical path, over and over again. In one field the Japanese cut ten mines in ten days while, in the same field, one of our units cut forty mines in ten minutes. They had much more experience with our mines and, over a period of months, had some fairly clear channels, leaving few active mines to be lifted by our sweepers. Such efforts on the part of the Japanese caused them great casualties both in shipping and in sweepers, not to mention the great effort expended.

As matters of further interest, British, Australian and Dutch sweepers cleared in general the Asia Coast South of Formosa and the islands South of the Philippines, although Seventh Fleet sweepers swept East Hainan Strait. U.S. YMS's attached to local commands cleared the remaining fields of the Philippines, Palaus, Marshall-Gilberts and did some clearance work at Truk and in the Bonins. U.S. Oropesa small boat sweepers were also used in the Palaus. The Russians lost some ships to mines during their initial invasion of Korea, and it is presumed that they carried out some sweeping in their occupation zones, but nothing is known of those efforts.

MACTU admirably carried out the Admiral's policies, in fact, with tongue in cheek, some of the old time sweepers accused them of wearing belt and suspenders. Be that as it may, the task could not have been accomplished without them. Obtaining charts of the mine laying by the Army's XXIst. Bomber Command plotted by Cmdr. Johnson and with a detailed description of the type and setting of each individual mine, MACTU plotted these on the standard portfolio full scale navigation charts and reproduced several hundred of each. The Admiral, Operations and Planning and MACTU then fully discussed the situation and a channel was selected, it usually being decided to plow right through on the most direct route. Like a winding main road, it was found that it had to be straightened eventually, anyway. Taking into account each mine that could possibly be in the channel, figuring a two mile error for a radar fix and a ten mile error for a navigational fix, detailed sweeping instructions were tailor made for each channel or area, each being a separate problem in itself. The Admiral then assigned forces, allotted gear and other support and sent a Task Group Commander out to do the job. Sounds very simple, but difficulties were continuous. The typical sweeping effort for influence mines took a period of about two months of continuous sweeping, using about one hundred vessels.

MACTU eventually worked up a large manual of instructions in influence minesweeping, which was the only place where all

the illogical and confusing nomenclature of influence sweep gear could be found under on cover. It would have been better to have had a preface sheet illustrating the types by a small schematic sketch of each, and still better to have had the designations changed, preferably to descriptive and easily remembered names.

Additionally, MACTU supplied acoustic and magnetic field men to the sweep groups, swell recorder operators, inspectors of Japanese mine warfare, a member to NavJap, and personnel to install the acoustic gear, for operations in connection with the Loch Ness and for construction of the Egg Crates. There is little doubt that much would have been gained had MACTU had some of the personnel from NMWTS, Solomon's Island, who had experimented with the small boat magnetic sweep gear.

## 21. COMPOSITION AND FUNCTIONING OF THE ADMINISTRATIVE STAFF: STAFF OF COMADCOMINPAC.

In the Spring of 1944, after leaving the Minocraft Type Command, South Pacific, Captain R.D. Edwards, USN, had gone to the East Coast as Cominron THIRTEEN, with additional duty during September and October as Comservron FIVE. In January 1945, he was sent back to the Pacific and assumed the duties of Chief Inspector for CominPac. On 7 May 1945, Captain Edwards relieved Captain Reinken as ComAdCominPac.

Appendix 1 shows the organization of CominPac and AdCominPac as it was visualized on 1 May 1945, which is a fairly close approximation but not an exact picture. While not actually placed in effect, by pointing out the actual and contemplated, Appendix I is probably the simplest means for visualizing both organizations.

YMS Type Commander was changed in name to YMS Type Representative, in order to eliminate confusion.

Of the Liaison Representatives, only Cmdr. John Winn, USNR, actually took office, first at Ulithi and then at Leyte. Cominron 101, Lt-Cmdr. J.D. Riner, USNR, acted as the West Coast Representative at SCTC, San Pedro, until relieved by Lt-Cmdr. F.K. Zinn, USNR, in August, but both officers were sailed forward immediately thereafter and both were almost as quickly demobilized. Cominron 103, Lt-Cmdr. E.A. Weymouth, USNR, in June succeeded Lt. R.E. Crowley, USNR, a prospective YMS Squadron Commander, as representative at Guam and his valuable services were greatly missed when he was sent back for separation in November 1945, or, to be more exact, he went back. Cominron 103, Lt.(jg) H.J. Johnson, USNR, acting during November and December, with Lt-Cmdr. H.D. Vanston, USN, relieving in December, continued to render valuable services to vessels of CominPac passing through Guam, but rapid demobilization adversely affected the efficiency of the Shore Base. Several important despatches from CominPac to Cominron 103 were not delivered, Egg Crate material was dispersed, two of CominPac's



carriers were preempted, conversions and loading of three mine-sweeping support LST's were greatly delayed and repairs to mincraft slowed to a walk. Cominron 104, Cmdr. C.M. Fligg, USNR, acted as the Representative at Ulithi until relieved on 2 June 1945, and was designated as a permanent Liaison Representative, but ended up on the Staff of CominPac instead.

As previously recorded, the YMS Squadrons, 101 to 108 inclusive, were not stabilized into definite groups. CominPac sent the YMS Commanders to areas as they were needed, with their very valuable ACM flagships. There, they worked with any YMS assigned to them by the local Task Group Commander.

Mine Squadrons SIX, SEVEN and ELEVEN were East Coast Squadrons which reported to CominPac when no longer needed in Europe. Squadrons NINE and THIRTEEN were dissolved on the East Coast, although some of their former ships reached the Pacific. Squadron TWENTY-ONE of Divisions SIXTY-ONE, SIXTY-TWO and SIXTY-THREE, is not shown in Appendix I, being a newly converted Squadron of 1630 ton destroyers to take the place of the very badly battered Squadron TWENTY, but arrived at Okinawa after hostilities ceased and engaged in post war open sea sweeping. Mindiv THIRTY-EIGHT should be added under Minron ELEVEN.

To detail all the very frequent departmental changes in personnel of the Pearl Harbor mine warfare administrative organization, of various title as previously outlined, would require a volume in itself. As of the end of hostilities, the personnel filling some of the billets shown in Appendix I were as follows:

Medical Administrator: Ensign H.V. Bickford, (HC), USN;

Officer Personnel: Lt. J.F. Williams, USNR;

Enlisted Personnel: Lt. D.A. Timmerman, USNR;

YMS Type Representative: Lt-Cmdr. C.A. Bowes, USNR;

Communications: Lt. W.T. Hancock, USNR;

Supply; Lt-Cmdr. J.H.B. Smith, (SC) USNR;

Chief of Staff and Ships Readiness: Cmdr. J.H. Brandt, USN;

Operations: Lt-Cmdr. B. Farkas, USNR;

Logistics: Lt. J.F. Cox II, USNR;

Engineering and Maintenance: Cmdr. J.G. Howell jr., USN;

Net Vessel Type Administrator: Lt-Cmdr. C.T. Hammons, USNR;  
and,

War Plans: Cmdr. G.C. Ellerton, USN, who was shortly sent  
out to the Operating Staff.

Cmdr. E.A. Johnson, USNR, and Lt. W. F. Wallace, USNR, were in the Marianas on the Staff of the Commanding General of the XXIst. Bomber Command, Major General Curtis LeMay, USA, shuttling between Guam and Tinian, planning the lays and briefing the air crews for the aerial mine blockade of Japan in accordance with the strategic plans of CincPac.

In addition, Cmdr. F. P. Mitchell jr., USN, Comindiv 58, whose ships were all undergoing battle damage repairs, was present aiding in minesweeping planning for the invasion of Japan, concurrently with the planning going on at Manila. This was a check, one against the other, and also to obtain the benefit of different ideas.

ComservPac handled the coding and decoding of messages. The Communication Department of AdCominPac prepared outgoing despatches and routed incoming ones.

With the ending of hostilities, the work load of some departments greatly increased, although some decreased, with all departments hard hit by demobilization. Demobilization swamped the Personnel Department. Supply and Logistics were hard pressed in forwarding supplies and minesweeping gear, mostly in carriers of CominPac. YMS's from the East and West Coasts streamed through Pearl, arriving in poor shape and requiring extensive machinery overhauls, and also overhaul and replenishment of minesweep gear. Increased training activities were needed due to the loss of the more experienced personnel from all vessels, but time and the loss of training personnel greatly handicapped these efforts. Minesweeping planning and support for the Marshall-Gilbert Area was supplied by AdCominPac, rather than by CominPac.

Admiral Sharp had requested that maintenance of minecraft be given to CominPac but this request was denied and it remained with ComservPac, Office of Fleet Readiness, which was probably a sound decision but one that will probably be debated for years. Considering the problems involved, it is supposed that it is surprising that engineering logistics worked as well as it did, but let no one surmise that it was other than well nigh intolerable. Of course, the basic difficulty was that practically no spare parts were manufactured for a period of about eighteen months, and no change in cognizance could have changed that fact, nor protected the organization from reaping the harvest of such an early policy. We, in the Pacific, had consoled ourselves with the thought that the boys in Europe were getting what they needed, it being the priority theatre, and that we would obtain what we needed when that task was completed. When the European sweepers commenced to stream into the Pacific, we found out that they had also been critically short of spare parts.

There was considerable duplication of effort between the Engineering and Maintenance Section of AdCominPac and the Fleet Maintenance Office of ComservPac, but the former was closer to the problems involved and did considerable of the



spade work and submitted it to the latter, who did not always see eye to eye. Also, Fleet Maintenance had tremendous commitments in all directions, including the bidding for spare parts for the diesel craft of other forces, principally the Amphibious Force.

## 22. MINECRAFT IN THE ALEUTIANS.

Upon the arrival of Task Force EIGHT, Rear Admiral R.A. Theobald, USN, in late May, 1942, there were three Naval Commands functioning in Alaskan Waters: Task Force EIGHT, a subordinate command of CincPac; Northwest Sea Frontier; and the Alaskan Sector, a subordinate command of Com 13th N.D. This division of authority posed many administrative difficulties, causing duplication and confusion.

On 4 January 1943, Rear Admiral Thomas C. Dindaidd, USN, relieved Admiral Theobald as C.T.F. 8, and on 15 March the former became Commander North Pacific Force, and T.F. 8 was changed to T.F. 16. On 3 October 1943, CincPac assigned task force numbers 90 to 94 to the North Pacific Force and thereafter there were many changes in designation and composition. On 4 October 1943, Vice Admiral F.J. Fletcher, USN, relieved Vice Admiral Kinkaid, as ComNorPacFor.

Effective 15 April 1944, Admiral Fletcher was given effective tactical control over all Army and Navy Forces in Alaska, except for the U.S. Army Air Corps. This was accomplished by making him Commander North Pacific Forces and Area, as well as Commander Alaskan Sea Frontier, both commands "wholly under the command of CincPac ---". Reporting to Admiral Fletcher, Rear Admiral F.E.M. Whiting, USN, was given command of all Alaskan Sea Frontier Forces (T.F.91), and also made Commandant of the new 17th N.D., which consisted of all territory formerly embraced by the Alaskan Sector of the 13th N.D. Amongst other forces, Admiral Whiting controlled two in which we are interested, in a study of minecraft command: first T.F. 91.2, Escort Group, with responsibility for the protection of shipping in the inshore and offshore waters of the 17th N.D., responsibilities formerly held by the then defunct AlSec Command; second, the Naval Local Defense Forces. The latter was divided into five "Subsectors", the successors of the old "Section Bases".

During July and August of 1942, half of each of Mindivs FOUR, FIVE and SIX, (6 DMS's), of Minron TWO, were assigned to and commenced operating in Alaskan Waters with Task Group 8; although three immediately returned to San Francisco for overhaul and were absent during August and September. The WASMUTH (DMS 15), Lt-Comdr. J.W. Leverton jr., USN, was lost in an Alaskan storm on 27 December 1942. As sweepers and bombardment vessels, they participated in the bombardment of Kiska on 7 August 1942, and the landings on Attu, 11 May 1943, and Kiska, 15 August 1943. Otherwise, they usually acted as

escorts and supporting vessels for NorPacFor. Due to old age creeping up on them and excessive weights, principally their magnetic sweep gear, they were found not to be able to stand the habitual rough weather and were withdrawn during September, 1943. Two were retained on the West Coast to provide gunnery services, the other four were overhauled and joined their Squadron in the South Pacific.

During the Winter of 1942-43, part of Mindiv FIFTEEN, of Minron FIVE, proceeded to Alaska and reported to Commander Alaskan Sector for duty. These small top-heavy 173' AM's could not take the habitual rough weather and were withdrawn during the fall of 1943.

Commencing in May 1943, the four 220' AM's of Mindiv TWELVE, Cmdr. R.B. Randolph, USNR, part of Minron FIVE, as they were commissioned, commenced reporting to Commander Alaskan Sector for duty and were used as escorts, but were withdrawn during December 1943.

Commencing in November 1943, part of Mindiv TWENTY-NINE, Lt. W.L. Savell jr., USNR, part of Minron TEN, as they completed shakedown, proceeded and reported to ComAlSec for duty. It is said that the basic idea behind such rapid shifts of vessels was to give them an initial period of operation in a quiet sector; or it may have been because a year was all that a small vessel could take. It was quiet as far as enemy action was concerned; but after a few months of Aleutian weather, each vessel was ready for an extensive overhaul. Rust was the hallmark of small Aleutian vessels.

Be that as it may be, during the summer of 1944, vessels from the East Coast making up Mindiv TWENTY-EIGHT, Lt-Cmdr. J. E. Stonington, USNR, later Lt-Cmdr. F. G. Moore, USNR, part of Minron TEN, commenced filtering into Alaska and reporting to C.T.F. 91.2 for escort duty, with occasional but difficult sweeping tasks. They relieved the vessels of Mindiv TWENTY-NINE, who proceeded to the Central Pacific after a short overhaul at San Francisco. Mindiv TWENTY-EIGHT remained in Alaska until they became a part of lend-lease in July 1945.

The DMS's were under the complete operational and administrative control of C.T.F. 8 (ComNorPac) and the AM's of ComAlSec (C.T.F. 91.2). Comservron SIX (CominPac) and the Squadron Commanders did furnish the vessels with copies of all correspondence of wide distribution and did receive a few reports. Mails were slow and there was little interchange of personnel, making it difficult for a vessel to pick up the threads when she did return to the Pacific Ocean Area.

In the fall of 1942, the first six YMS's built on the Pacific Coast were commissioned and three sent to the South Pacific and three reported to ComAlSec for duty, and were assigned to the Section Base at Kuluk Bay. Ship groundings in Constantine Harbor proved that the harbor charts were much



in error, so YMS 126, Lt. D.N. Lott, USNR, was sent over to survey and wire drag the harbor, plot shoals and buoy pinnacles and shoals. This arduous work took five weeks of February and March of 1943, working in high seas, in bitter weather and under frequent attack by Japanese zeros. This work contributed greatly to the successful occupation of Amchitka.

By January 1945, there were 10 YMS's, 3 AN's and 2 AMc's attached to the "Subsectors" (ex-Section Bases), Naval Local Defense Forces, Alaskan Sea Frontier (ex-AlSec). COMSERVRON SIX (COMINPAC) had no liaison nor control over these vessels.

During July 1942, 3 DM's, from Pearl, laid a defensive minefield off Kodiak. During September and November 1942, 4 DM's likewise laid fields off Adak.

### 23. MINECRAFT IN THE SOUTH PACIFIC.

At first, except for the Marshall-Gilbert raids and the Battle of Midway, the war was being fought in the South Pacific. Except for a few minecraft sent to the Aleutians, new construction was funneled to Commander Service Squadron South Pacific Force for administrative and operational control. Finally becoming too unwieldy, in September, 1943, a type command was set up with Captain R.D. Edwards, USN, as Type Commander Minecraft, Third Fleet, for administrative, training, maintenance and operational control of all minecraft of the Third Fleet, as well as two minesweep depots and three mine depots. In addition, minesweeping and minelaying plans were drawn up.

Twelve YMS's had arrived in the South Pacific by mid-summer, 1942, and twenty-four more were assigned during August. Light minelayers from Pearl Harbor laid extensive mine fields during 1942, particularly during the first six months. During the winter months of 1942/43 part of MINDIV FIFTEEN and all of MINDIV THREE reported. By fall of 1943 the Type Commander had control of eighty-five ships. In February, 1944, the Type Commander was given the added responsibility of 115 anti-submarine vessels. In June, 1944, except for the YMS's, all minecraft assigned to the South Pacific Force were placed under the administrative command of COMSERVRON SIX, leaving operational control where it was.

### 24. MINECRAFT WITH THE SEVENTH FLEET.

The first minesweepers which reported for duty to Commander Seventh Fleet were YMS's, which commenced to arrive in June, 1943. These were placed under the administrative control of Commander Mine and Escort Force, Seventh Fleet, first Captain Penn L. Carrol, USN, then latter Captain T.J. O'Brien, USN, who allocated them to the operational control of either Commander Amphibious Force, Seventh Fleet, Rear Admiral D.E. Barbey, USN, or Commander Australian Sea Frontier. The last YMS was not returned by the latter until after Com 7th. Fleet moved to Manila in 1945.

In January 1944, the Mine and Escort Force was dissolved and Escort and Minecraft Squadrons, Service Force, Seventh Fleet, Captain J. D. Beard, USN, was set up and administrative command of Seventh Fleet minecraft passed to that organization leaving operational control as before. On 15 November 1944, Escort and Minecraft was changed in name to Service Squadron FOUR, Service Force, Seventh Fleet.

In October 1944, the six 180' AM's making up Mindiv THIRTY-FOUR, Lt-Cmdr. J. R. Keefer, USNR, later Lt-Cmdr. T. R. Fonick, USNR, reported to the operational and administrative control of Commander Seventh Fleet and the remnants were physically returned to CominPac during September, 1945. This Division and the YMS's were all the minecraft that were assigned to Com 7th. Fleet prior to the Japanese surrender, except the assault sweepers loaned for the Philippine Campaign but withdrawn after the Lingayen Invasion.

Lt-Cmdr. S.S. Leon, USNR, was set up as Cominron 106 on 12 June 1945, taking administrative control and some of the operational control of the Seventh Fleet YMS's, reporting to Comservron FOUR. Lt-Cmdr. Leon was the first administrator of Seventh Fleet minecraft whose specific duties were in connection with minecraft; except for the loan of Cominron TWO, Cmdr. Loud, for the Leyte and Lingayen Invasions and Cominron TEN, Cmdr. McEathron, for the Ormoc-Mindoro Invasions. Otherwise, the senior Commanding Officer of minecraft present planned and conducted minesweeping operations, under the supervision of the Assault Commander.

It was not until 15 August 1945, that administrative control of all Seventh Fleet Minecraft, including Minron 106, passed to CominPac. After that date, some logistics support, primarily in the field of minesweep gear and whole sweep units were supplied from the main forces of CominPac; all of which should no doubt have been furnished in any case. In October, 1945, CominPac loaned Cominron SIX, Cmdr. John L. Maloney, USNR, and Cominron ELEVEN, Cmdr. S. B. Wetmore, USNR. to Com 7th. Fleet; Cmdr. Maloney for temporary duty on the Staff and Cmdr. Wetmore to act as a Sweep Group Commander.

During hostilities, at one time or another at least, in probably all areas of the Pacific, escort vessels and minecraft were jointly operated by the local area escort vessel commander, of various title. No case is known where the results of this policy were not detrimental to the primary function of minecraft, no less so in the Seventh Fleet. The various escort commanders were faced with the immediately urgent and continuously pressing problem of supplying more escorts than were available; and, after all, most minecraft were equipped as anti-submarine vessels, a windfall, no less. Necessary diversion that it was; the vessels were not given sufficient time, spare parts or facilities for overhaul, they became worn out before their time and minesweeping training usually went by the board. With the high turn over of personnel, the latter factor was probably the most serious of all.



Also, mines and countermeasures changed rapidly; and countermeasures for some mines were kept secret until it became necessary to sweep them. So secret, in fact, that one in the field was not certain that he had the latest word. In one Seventh Fleet area, a hodgepodge of various types of American and British aircraft laid mines was found within the boundaries of Japanese moored fields; all requiring different methods of sweeping. Seventh Fleet command relationship was understood in other areas by only a few, mails were slow and there was little interchange of personnel with other mine warfare activities, resulting in Seventh Fleet Minecraft being cut off from many of the benefits and advanced knowledge available to others. Minecraft presented rather specialized upkeep and logistics problems, which required the knowledge of experience with those types.

There were several methods that might give better liaison between CominPac (Comservon SIX) and a Fleet Commander in a parallel situation. The method preferred would consist of two steps. First, to retain administrative control in CominPac, although such control would be remote and loosely held. However, there would be many specialized services that could be rendered by CominPac. Secondly, the establishment of one or more Mine Squadrons early in the game, such as Minron 106. The Commander of the Mine Squadron would be trained in mine warfare, would be the minesweeping specialist to coordinate administrative control between CominPac and the local Fleet Organization, exercise operational control in that local area which had the largest group of sweepers, conduct minesweeping training programs, plan minesweeping operations and conduct them under the Assault Commander. Finally, it is believed, that such a Squadron Commander should be rotated every six months with one from the main forces of CominPac, in order that the benefits of the latest ideas and experiences might be had. A similar set-up for mining should be effective, should surface mining be an active commitment.

## 25. OKINAWA MINECRAFT GROUP.

Events held Admiral Struble to Okinawa as a base for operations much longer than he desired, and he was unable to make the break until the end of October, 1945. From shortly after taking command, his efforts were directed to pulling out and shifting his headquarters to Japan, tentatively Sasebo, Kyushu, the port which later was actually used. Area Skagway, the name given the minefield along the eastern border of the China Sea, the port of Sasebo, and Van Diemen Straits had all first to be cleared of mines. Okinawa was loaded with mincraft needing supplies and repairs, far in excess of the availability of either, and, in some cases, to be equipped with special gear. The YMS's were to be stripped of non-essential topside weights in order to restore them to their pristine seaworthy condition a difficult task due to their large number and the limited facilities available. Mark VI mine case type buoys had to be supplied for the open sea fields, located far from land, and



the WEEHAWKEN had the only storage tracks available in the Area, until the arrival of the SANGAY after the typhoon of 9 October 1945, after the grounding of the WEEHAWKEN. Minesweep gear afloat had been largely exhausted and the support LST's were not ready until the end of October, nor the LSM's until later. This necessitated fast trips by the four APD's with limited cargoes of sweep gear, each in the neighborhood of two hundred tons, to Shanghai, Northern Honshu, Hong Kong and the main ports of Japan. The APD's could not get into the Minesweep Depot dock and had to be loaded using the few small boats which could be obtained, weather permitting. During the entire period the board was not clear of at least one typhoon, any one of which could affect the Okinawa Area and many did, resulting in woful loss of life, serious loss of vessels, heavy damage to others, and serious delay in operations. At first operations were urgent in order to evacuate allied prisoners of war in Japanese hands, as each day of delay meant the death of many from starvation and illness.

The loss of life was heavy during the typhoon of 15 September because four YMS's foundered at sea. Two, with only one survivor between them, for reasons which will never be known, failed to make the turn at the North tip of Okinawa where the others ahead of them did, on their way to the storm refuge at Unten Ko. The YMS with the one survivor attempted to make the turn, some hours later, to westward between the islands and rolled over. No trace of the other YMS was found. Two YMS's foundered just outside Buckner Bay and most of their crews were saved. Those two were enroute from Saipan and Comin-Pac had not been so informed.

It was fortunate that the loss of life to those serving in Minecraft was limited to six during the typhoon of 9 October 1945. It could well have been several hundred had not Admiral Struble broadcast a message telling vessels not to abandon ship unless it were certain that the vessel was breaking up. This stopped an incipient wave of abandoning ship by those who had not previously seen a typhoon. Those of minecraft that stayed with their ships were saved, but vessels of other forces anchored in the southern anchorage were less fortunate.

All more or less cripples to start with, the YMS's parted their chains and then commenced circling the harbor, eventually becoming lost and grounding. The crew of one YMS abandoned ship and drifted in a group through the harbor entrance. Another YMS was blown through the harbor entrance and, in the morning, thoroughly lost, found herself amongst the group of survivors and picked them up. Other survivors were picked up as far out as thirty miles at sea. The survivors were cared for at MAD 8 on Okinawa, on the TERROR and other vessels until the arrival on 12 October of the USS SHERBURNE (APD 205), Cmdr. L.A. Parker, USN, which was rushed there for that purpose, at the request of Admiral Struble, and she finally housed 189 officer and 1219 enlisted survivors. When the count was finally made,



19 vessels of Minicraft were aground or sunk in Buckner Bay and 5 vessels were aground at Unton Ko, a mediocre refuge open to the wind but not the sea and greatly overcrowded with small craft of all kinds. For the first few hours after the storm, CominPac had but one LCPR in operating condition and this boat alone, ably handled by Chief Gunner F.E. Singleton jr., USN, evacuated over nine hundred persons from grounded craft, from reefs and rocks, and from the keels of overturned vessels. During the height of the storm, herself aground, the MONA ISLAND saved the crew of a nearby SC which was breaking up, by means of breeches buoy. Before the storm, rations on Okinawa were critical, aggravated by a great influx of personnel for demobilization landed by vessels of the Fleet, and the Section Base had been issuing K rations on the basis of two meals a day. MAD 8 did not have enough food for the survivors and meat and other food from the WEEHAWKEN, and other vessels, was salvaged and sent to MAD 8.

As a matter of interest, the eye of each of the two typhoons could be seen on the radar, each twenty miles in diameter and the center of each passing Buckner Bay thirty miles to the eastward. While the wind velocity of the second storm was greater, the swell inside Buckner Bay was less as the storm approached from due South. The first storm approached from South by East, causing more swell inside.

Small boat sweepers had been assembled; equipped with moored minesweep gear and their crews were in training at Pearl in preparation for the invasion of Kyushu. Comtransdiv 104, Captain John F. Gallaher, USN, was on the West Coast training underwater demolition teams for the invasion. With the surrender, Captain Gallaher was ordered forward to pick up the boats and crews at Pearl, and to report with them to CominPac at Okinawa where some were to be converted to magnetic small boat sweepers. He was assigned: USS BUNCH (APD 79), Lt. E.W. Donnelly, USNR; USS RAY K. EDWARDS (APD 96), Lt-Cmdr. D.F. Welch, USNR; USS EARLE B. HALL (APD 107), Cmdr. E. J. Hadden USNR, hospitalized on 3 October, the Lt-Cmdr. B. B. Gehgan, USNR, from 17 October; and the USS KLEINSMITH (APD 134), Lt-Cmdr. A. J. Laborde, USNR, then Lt-Cmdr. G. D. Kissen, USNR, from 24 November. Desiring to set up the Okinawa Group as soon as possible, the Admiral ordered Captain Gallaher forward by air travel and left his vessels in the Marianas, arriving towards the end of September and spending several days getting organized prior to taking over local control. His four APD's arrived off Okinawa on 28 September and joined the vessels at sea, which sortied with the BIBB because of another typhoon warning, finally anchoring in Buckner Bay on 1 October 1945. On 7 October, Captain Gallaher took over as Commander Minicraft Group, Okinawa, with the BIBB as flagship, and his first duties were to sortie at 1300, 7 October, with all fully operatable vessels for what proved to be the devastating typhoon of 9 October. CominPac remained in port in the damaged TERROR together with those vessels which for various reasons were believed to be safer in the harbor than at sea. Each vessel was



specifically designated, based on the merits of the particular case. Later, some, who learned their seamanship from "Mutiny on the Bounty", argued that they would have been safer at sea, forgetting that four YMS's lost over ten times as many lives during the previous typhoon as were lost from twenty-four vessels during the later one. Okinawa is the crossroads of the typhoons and it is only at the last minute that one is certain whether it will pass West, East or over. For instance, the typhoon of 9 October was apparently heading directly for Formosa, when it suddenly stopped in its tracks and then headed due North.

The backwash of the typhoon delayed the departure of CominPac about two weeks, in order to aid CominGrpOk, who found himself with much more numerous and difficult problems than had previously been expected. In addition to the original function of supporting minecraft in Japan and with the Seventh Fleet in Asia; expediting the repair, supply and forward departure of minecraft at Okinawa, or passing through; he was met with the multitudinous duties of caring for the skeleton crews of those vessels which were without power; salvaging those vessels which could be floated, and the records and valuable gear from those that could not; transferring for discharge the personnel with sufficient points, harassed by those who suddenly discovered that they were "hardship" cases; assigning new personnel; preparing records for the inspection of grounded vessels by the Sub Board of Inspection and Survey; fending off criticisms of the three of four omnipotent individuals, who remained civilians to the end, out of the 1408 survivors; and, many other of the daily hundred and one problems. Competently assisted by Captain Sims, Cominron FOURTEEN this time, Captain Gallaher ably met the above problems, although bed-ridden during the month of November due to a leg injury, caused by its being crushed between a boat and the ship.

The Sub Board of Investigation and Survey, Captain L G. Beech, USN, commenced its inspection of grounded minecraft on 30 October and recommendations were made to the Navy Department for their disposition. The SHERBRUNE sailed with most of the survivors on 14 November, leaving at least one officer and one man from each vessel above water to care for salvaged gear, which was loaded into the TUSCANA and sailed for Pearl on 23 November. The grounded YMS's at Unten Ko were stripped during December, as soon as permission was obtained, and the gear sent back in the IST 617. The greatest sympathy was felt for the men who lay around the SHERBRUNE for five weeks, with little to do. The interests of the United States had to be protected and the delay could not have been avoided, at least not without a radical change of procedure by the Navy Department. At any rate, the men did not lay around in the mud of Okinawa and they actually returned home sooner than they would have had they been landed there, to eat K rations. Had all this been carefully explained to the men, they no doubt would have felt better about the matter.



On 25 November, the USS KNIGHT (DMS 40) arrived, its Commanding Officer Cmdr. J. B. Ferritor, USN, having been designated as the relief for Captain Gallaher as CominGrpOk and took over on 1 December. On the latter date, the BIBB sailed for the East Coast and Captain Gallaher was detached and left for the West Coast by air.

The Minesweep Depot at Okinawa was the one link in the chain without which operations would have been delayed by months. It was also the activity which linked minocraft to Okinawa for so long.

With Lt. Fred Chambers, USNR, in charge, with Lt. L. V. Gooch, USNR, and Lt. H. H. Baker, USN, as assistants, and about twenty men that they had trained while outfitting in San Francisco, the Easy 13 Unit arrived during July and took over an area of rice paddies in the Section Base, in which their gear often sank out of sight. Air fields and roads having first priority, it was not until after cessation of hostilities that the dock was completed, hard stand placed over the rice paddies and three 40X100 foot Quonset huts and one Butler hut of similar size erected. Prior to the completion of the dock, boats were beached and loaded, while gear was unloaded from ships to a dock miles away and trucked in. Even when completed, the dock was only of limited value until ComNob robbed someone else and assigned two 10 ton mobile cranes, items not included in the original outfitting list, a great mistake.

For some time it was the best dock on Okinawa and a most important section of the life-line of CominPac. The outboard end was of pontoon sections, the face of it being long enough for one LST or two LSM's. Completed just in time for the 15 September typhoon, thirteen vessels, LCI's, YMS's, LCT's, SC's LCT's and others, sought refuge there. For forty-eight hours Lt. Chambers and his men successfully fought to save the ships, continually up now chain and wire to replace those which had snapped and to re-inforce those which had not. It nearly wrecked the dock and it was closed several days for repairs, but damage to the ships was minor. During the typhoon of 9 October four ships took refuge there and were saved from possible grounding.

Augmented by men from MAD 8 and any other source which became available, the Minesweep Depot Command reached a peak of about seventy men, working shifts around the clock, seven days a week, clear into December. They still had an allowance of four rated men, a great injustice to one of the hardest working units of the Pacific.

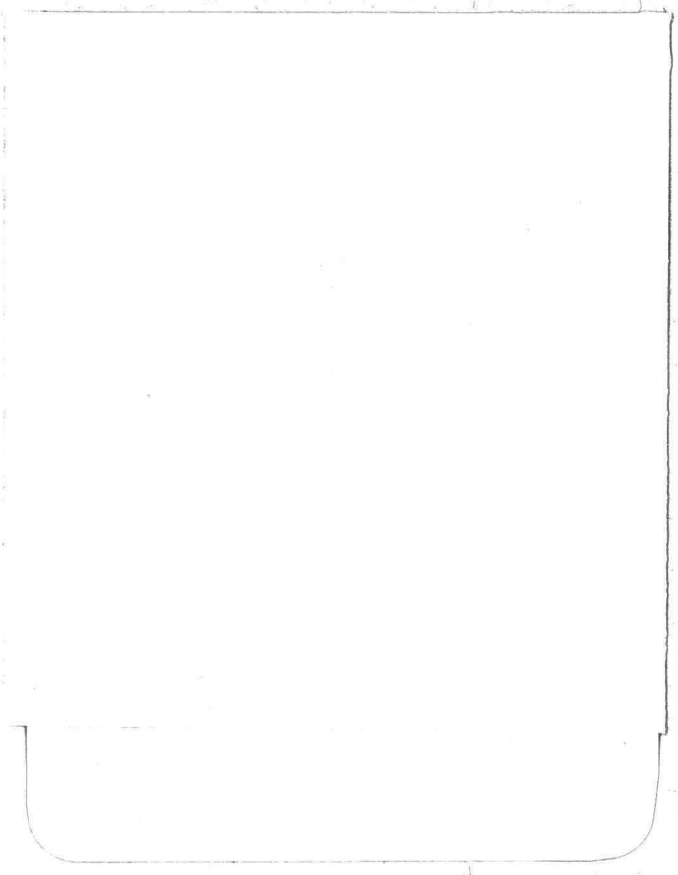
The typhoon of 9 October carried away the three Quonset huts and all the tents which housed the men. The SHERBRUNE supplied new tents but the huts were not replaced.

During November, the USS YDG 9, being without auxillary power because of the lack of spare parts, was taken to the West side of the dock and the YDG 10 placed alongside in order to furnish power to her. A shore based 440 volt 3 phase generator and a shore based distiller were finally obtained and placed on the dock for her use. There both vessels continued their excellent work in equipping LCP(R)'s as small boat magnetic sweepers.

On 14 November Lt. Chambers returned to the Continental Limits for separation and Lt. Gooch took over. In his turn, Lt. Baker had command of the Minesweep Depot.







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